INVESTIGATING THE ABILITY OF TAXPAYERS TO DETERMINE THE INCOME TAX CONSEQUENCES OF CRYPTOCURRENCY TRANSACTIONS IN SOUTH AFRICA

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I hereby declare that I have read and understood the regulations governing the submission of Master of Commerce dissertations, including those relating to length and plagiarism, as contained in the rules of the University of Cape Town, and that this dissertation conforms to those regulations.

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DEDICATION

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ABSTRACT

In 2018, the South African Revenue Service (SARS) issued a media statement providing guidance for the first time to South African citizens on the taxation of cryptocurrency transactions. The SARS media guidelines indicate that the normal income tax rules of the South African Income Tax Act will apply to cryptocurrency transactions and that cryptocurrency gains or losses must be declared as part of taxable income.

The purpose of this research study was to investigate the ability of South African taxpayers to determine the income tax consequences of cryptocurrency transactions using the SARS media guidelines. Previous research has focused on establishing the theoretical income tax consequences of cryptocurrency transactions, rather than on the ability of taxpayers to determine those consequences.

The study made use of both doctrinal and quantitative research methods to address the research questions. Using doctrinal research, in-depth document analysis was performed to benchmark the SARS media guidelines to that of selected tax authorities, to ascertain the completeness of this guidance. Quantitative data was collected through a cross-sectional survey questionnaire, to test the ability of participants to determine the income tax consequences of cryptocurrency transactions.

This study found that the SARS media guidelines did not comprehensively address all the cryptocurrency transactions considered by the guidelines of the other selected tax authorities examined. The SARS media guidelines did not have a statistically significant effect on the participants' ability to determine the income tax consequences of the cryptocurrency transactions presented to them. However, the tax literacy level of participants was found to influence their understanding of the income tax consequences of cryptocurrency transactions, particularly in respect of those transactions not addressed by the SARS media guidelines. These findings support the recommendation that SARS provide more comprehensive guidance to taxpayers, and should focus on improving the tax literacy of taxpayers in general and, with respect to cryptocurrency transactions.

Keywords: Cryptocurrency, Experimental survey questionnaire, South African income tax, South African Revenue Service, Tax literacy.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ACRONYMS

Acronym	Description
APC	Assessment of Professional Competence
ATO	Australian Taxation Office
BIS	Bank for International Settlements
CISA	Certified Information Systems Auditor
CIA	Certified Internal Auditor
CARWG	Crypto Assets Regulatory Working Group
DLT	Distributed Ledger Technology
FSCA	Financial Sector Conduct Authority
HMRC	Her Majesty's Revenue and Customs
ICO	Initial coin offering
IRS	Internal Revenue Services
IMF	International Monetary Fund
OECD	Organisation for Economic Co-operation and Development
PSA	Payment Services Act
PGDA	Postgraduate Diploma in Accounting
PBO	Public Benefit Organisations
The Act	South African Income Tax Act 58 of 1965
SA	South Africa/South African
SAICA	South African Institute of Chartered Accountants
SARB	South African Reserve Bank
SARS	South African Revenue Service
UK	United Kingdom
UN	United Nations
USA	United States of America
UCT	University of Cape Town

1 INTRODUCTION

In 2018, the South African Revenue Service (SARS) issued a media statement providing guidance to South African (SA) citizens on the taxation of cryptocurrency transactions for the first time (hereafter referred to as the SARS media guidelines). The statement indicates that normal income tax rules per the Act, will continue to apply and that cryptocurrency gains or losses must be declared as part of taxable income. The research study explored the complexity and understandability of the income tax consequences of cryptocurrency transactions, in relation to the guidance provided by SARS.

A cryptocurrency is a medium of exchange, which is digital and uses encryption techniques to control the creation of monetary units and to verify the transfer of funds (Likens, 2018). Considering the novelty of the concept of cryptocurrency, many countries have not explored the possible regulations and taxation guidance related to cryptocurrency transactions. However, the following countries' revenue services: United States of America (US) − Internal Revenue Services (IRS), United Kingdom (UK) − Her Majesty's Revenue and Customs (HMRC), Australia − the Australian Taxation Office (ATO) and South Africa (SA) – South African Revenue Service (SARS) are amongst those which have issued guidelines on the taxation regulations governing cryptocurrency transactions. The study considered the understanding of income tax consequences of cryptocurrency transactions, which may be referred to as a specific application of tax literacy in a particular context. Tax literacy is described as a component of financial literacy, which focuses on an individual's comprehension and numerical skills of tax-related matters within their local and international jurisdiction (Bornman & Wassermann, 2020).

This study's primary research question enquired whether SA taxpayers are able to determine the income tax consequences of cryptocurrency transactions, considering the current state of the SARS media guidelines. The objective of the study was to ascertain whether SARS should be encouraged to issue further guidance to SA taxpayers, to enable them to determine the income tax consequences of cryptocurrency transactions, as set out in the South African Income Tax Act 58 of 1962 (the Act).

The study made use of both a doctrinal research method and a quantitative approach to collect data to address the research questions. Using doctrinal research, in-depth document analysis was performed to benchmark the SARS media guidelines to that of other selected tax authorities, to ascertain the completeness of the cryptocurrency transactions addressed. The data collected from the in-depth document analysis was analysed and the guidance proposed for the gaps identified, according to the Act, formed part of the experimental survey

questionnaire. Quantitative data was collected through a cross-sectional survey questionnaire, to test the ability of participants to determine the income tax consequences of cryptocurrency transactions. The participants involved in the study were students studying the Postgraduate Diploma in Accounting (PGDA) and trainee accountants registered for the Assessment of Professional Competence (APC) Professional Programme with the University of Cape Town (UCT).

The study seeks to enlighten the SARS on taxpayers' ability to determine the income tax consequences of cryptocurrency transactions, based on the current tax legislation and regulations. The study has further highlighted the improvements that are needed to the current SARS media guidelines, to improve the taxpayers' understanding of the income tax consequences of cryptocurrency transactions and compliance with the current tax declarations of cryptocurrency transactions.

The remainder of this study is structured into the following chapters: Chapter 2 explores the definition of cryptocurrency, the cryptocurrency transactions addressed by the SARS media guidelines and by other jurisdictions and considerations of South Africans' tax literacy. Chapter 3 describes the research questions, strategy and data collection and analysis methods employed. Chapter 4 includes the results from the document analysis, the recommended treatment for the cryptocurrency transactions not addressed by the SARS media guidelines and the experimental survey questionnaire employed to answer the study's research questions. Chapter 5 provides a discussion of the findings, recommendations and future research possibilities.

2 LITERATURE REVIEW AND BACKGROUND

The key concepts introduced in the study are explained below to provide an appropriate background to the study and what it aims to achieve. These concepts include cryptocurrencies, tax consequences of cryptocurrencies and tax literacy.

2.1 CRYPTOCURRENCIES

2.1.1 Definition of currencies

To establish an understanding of cryptocurrencies and fiat currencies, the term “currency” should be defined. Currency is an instrument that is used as a medium of exchange to facilitate transactions between parties, helping the buyers and sellers to find the right ‘price’ at which the transaction can take place (Peetz & Mall, 2017). Fiat currency is any government-issued currency, which is tangible because it is issued in coins or notes. Fiat currency is typically not backed by a physical commodity such as gold, but by the government’s financial system (Hong *et al*., 2018).

In recent years, there has been a rise of alternative currencies such as the Brixton pound, Cryptoassets and Gaming coins. An alternative currency is an instrument, other than fiat currency or commodity, which serves as a medium of exchange in the country. However, it is neither minted nor designated as legal tender by any government (Hileman, 2013). Cryptoassets are alternative currency tokens that comprise three different types, cryptocurrency, security tokens and utility tokens (Dewey, 2019). A cryptocurrency is a digital medium of exchange, which uses encryption techniques to control the creation of monetary units and to verify the transfer of funds (Likens, 2018). In this study, cryptocurrency is the ‘alternative’ currency of interest and, thus, its definition is elaborated below.

2.1.2 Definition/description of cryptocurrency

Cryptocurrency is an electronically issued medium of exchange, which, due to its virtual nature, is not guaranteed in fiat currency (Houben & Snyers, 2018). The "crypto" part of this term stems from the use of cryptography for security and verification purposes during transactions (Fiorillo, 2018). Cryptocurrency is decentralised in nature, and has no central administering authority or oversight, but is distributed via peer-to-peer networks. This practice is in contrast to the centralised fiat currency schemes operated through a single institution, which is mandated to control the system, such as the South African Reserve Bank (SARB), the United States Federal Reserve System or the Reserve Bank of Australia, which may issue and redeem tangible (fiat) currency units (Bal, 2015).

In light of the above information, cryptocurrency is an intangible medium of exchange, which is not supported or approved by any government, but rather a digital asset that can be exchanged for either goods, services or other currencies. Due to the decentralised nature of cryptocurrency, it cannot be controlled, which is why governments do not recognise it as legal tender, as they do other tangible currencies, such as fiat currency (Legal Research Directorate, 2018).

As popular as the term “cryptocurrency” is and as much as investment in cryptocurrency is a current phenomenon, many countries and publications use different terminology for cryptocurrency. The terminology used to describe cryptocurrency differs even within those countries that have not only recognised and defined cryptocurrency and its related transactions but have also issued guidelines clarifying the taxation of cryptocurrency transactions, such as the USA, UK, Australia and SA.

The IRS uses the term “Virtual Currency” in its Taxation Notice 2014-21 (2014). Virtual currency can be used to pay for goods and services, or traded on a trading platform or converted to fiat currency. However, the United States Federal Reserve System does not consider cryptocurrency as legal tender, which would attract foreign currency gains or losses, for US federal tax purposes. The IRS indicates ‘Bitcoin’ as an example of the virtual currency referred to in the guidelines provided (IRS, 2014). The IRS issued further guidelines on virtual currency in 2019, which has maintained the term of virtual currency (IRS, 2019b). In both these guidance documents, the IRS does not address other types of tokens, such as utility and security tokens.

In the UK the HMRC initially used the term “cryptocurrency” in its earlier guidelines (HMRC, 2014). However, the updated guidelines, released after the issue of the “Cryptoassets Taskforce: Final Report”, has used the term “cryptoassets” (Braddick et al., 2018). The HMRC, in conjunction with the Cryptoassets Taskforce, has indicated that cryptoassets are not considered to operate as a currency, because they are too volatile to control, a ruling which is in line with other governments’ sentiments (HMRC, 2018). The revised term, “cryptoasset”, has extended the scope from cryptocurrency as initially communicated, to include the other forms of “cryptoassets”, namely utility tokens and security tokens, with cryptocurrency being regarded as an exchange token (HMRC, 2019a). An exchange token is intended for use as a method of payment for the supply of goods and services, including the payment of salaries. Exchange tokens include Bitcoin. Utility tokens provide their holders with access to particular goods or services on a virtual platform, usually using blockchain. Ethereum is an example of a utility token. Security tokens, in common with shares, provide investors with particular interests in a specified business. Neufund is an example of a security token (HMRC, 2019a).

In Australia, the ATO uses the term “cryptocurrency” in its guidelines on the tax consequences of cryptocurrency transactions (ATO, 2019b). These guidelines address the cryptocurrency used in the exchange of goods or services, particularly Bitcoin, but do not address the other forms of tokens, such as utility and security tokens. The ATO does not consider cryptocurrency as legal tender (ATO, 2019b).

In its initial statement, the SA government described cryptocurrency as “digital currency” (National Treasury, 2014), however, in its latest issued statement, the term used is “cryptoasset” (IFWG, 2019). Cryptoasset is defined as a digital value representation or token, which means it possesses the aspects of both cryptocurrency and a digital token, as per the Serbian government’s definition of this phenomenon. This latest public statement further specifies that the SA government does not consider cryptoassets as legal tender, in contrast to the other 180 fiat currencies recognised by the United Nations (UN) (IFWG, 2019).

The various governments discussed above, which have issued guidelines on the regulation or taxation of cryptocurrency through public research papers and public policy statements during the period 2018 – 2019, predominantly used the term cryptoassets, which is inclusive of cryptocurrency tokens. The position of the governments which have used the term “cryptoasset”, considers them to consist of two sectors, namely both “cryptocurrency” and a digital token. The term digital token is further broken down into two sectors − utility and security tokens. Utility tokens function as tokens issued by a particular platform, such as Ether and Siacoin, and are used as a means of payment on that platform for the usage of the network, but are non-redeemable and carry no rights to any actual pay-out (Dewey, 2019). A security token is defined as one used for either investment or borrowing, such as Blockestate and tZero (Houben & Snyers, 2018). Cryptocurrency is used for engaging in transactions for the exchange of goods and services, such as Bitcoin and Bitcoin Cash (Houben & Snyers, 2018).

The inclusive term used in the SA regulatory guidelines is cryptoassets, which is inclusive of two categories; cryptocurrency and tokens, of which the former is the focus of the study which is limited to the SA income tax consequences of cryptocurrency transactions. The term cryptocurrency as used in the remainder of this study is consistent with the concept of an exchange token, which includes Bitcoin.

2.1.3 The beginning of cryptocurrencies

The cryptocurrency concept was first initiated by Chaum in 1983, and comprised the use of ‘blind signatures’ to make payments, by utilising a bank and a payer’s private key or signature. The concept was built upon the idea of a secret ballot whereby the original signature could not be traced to the sender or compiler of the ballot, thus providing anonymity (Chaum, 1998). This

concept was further developed, with “The untraceable electronic cash” research paper (Chaum, *et al*., 1990) paving the way for the introduction of the cryptocurrency concept. In 2009, Satoshi Nakamoto, a research group, produced a white paper on the introduction of a cryptocurrency, which was an improvement on the work of Chaum, *et al*. (1990) which led to the introduction of Bitcoin (Wicht, 2016).

Since the introduction of Bitcoin, there has been a surge of interest from investors in cryptocurrency, with over 2000 different types of cryptoassets currently active on the market. The largest cryptocurrencies include Bitcoin, Binance Coin, Cardano, Litecoin and Polkadot, while the largest tokens include Ether and EOS (Coinmarketcap, 2021). Cryptocurrencies continue to be introduced at a rapid pace, with Facebook announcing the Libra in June 2019, which was planned to be released to the market in 2020 (Paul, 2019). In SA, Bitcoin is the most commonly traded cryptocurrency (Whittle, *et al*., 2020).

2.1.4 How to obtain cryptocurrencies

Cryptocurrency utilises Distributed Ledger Technology (DLT), an approach of recording and sharing data across multiple ledgers. Using DLT allows for different network participants to transact with each other, with data being recorded, shared and synchronized across the network (Krause, 2017). Blockchain is the underlying technology of cryptocurrency and is the most common DLT. It employs an encryption method known as cryptography as a mechanism that takes the form of a chain of transaction blocks and functions as a distributed ledger (Houben & Snyers, 2018). A cryptocurrency user can obtain cryptocurrency either through a process of cryptocurrency mining (cryptomining), or by making use of an exchange platform to either trade cryptocurrency for another currency or to purchase cryptocurrency in fiat currency, or through a direct transfer from another user’s digital-wallet or e-wallet (Kazakov, 2018). SA’s cryptocurrency users have been using local platforms such as Luno, IceCube ((Ice^{3}x) and Coindirect, with Luno and IceCube being the most popular. Luno has more than 4 million registered users, not all of whom are SA citizens, with 75% of the trading being in SA Rands (Whittle, *et al*., 2020), from 2 million users in 2019.

Cryptomining involves the use of computer software to solve complex cryptographic algorithms. In the process of ‘mining’, a ‘miner’ adds to the blockchain and is rewarded by receiving new cryptocurrency (HMRC, 2018). Some of the cryptocurrencies available have blockchains with a finite future supply and, as such, the introduction of new units of the new cryptocurrency is limited (Kazakov, 2018).

During the mining activities, a fork of a blockchain to create a hard or soft fork can occur. A fork involves a process via which either the blockchain of the cryptocurrency experiences a

change in the protocol, which is adopted by all users, or a second branch is created. A soft fork occurs when all users adopt the changes, thus leading to no new blockchain or cryptocurrency being created. In the event that the update in protocol leads to the creation of a new blockchain, thus leading to the creation of a new cryptocurrency, this process is known as a hard fork (HMRC, 2019a). Bitcoin and Bitcoin Cash are an example of a hard fork occurring, in which the original Bitcoin blockchain branched to create a new blockchain, and a Bitcoin Cash blockchain was thus introduced (Firth, 2019).

Other options for acquiring cryptocurrency would be to purchase cryptocurrency on an exchange platform or to trade one cryptocurrency for another. Cryptocurrencies can also be received as a donation, or in payment for goods or services (Houben & Snyers, 2018). In SA, online retail platforms such as Takealot.com, Superbalist, RunwaySale and Bid or Buy, accept Bitcoin as a form of payment (CryptoTradersZA, 2020). Employees of an organisation can receive cryptocurrency in payment for services rendered. A company can have an initial coin offering (ICO), which is when the company first introduces the cryptocurrency for sale to the market. An ICO can be compared to the initial listing of shares in a company, even though the two are legally and technically different. The ICO provides access to the cryptocurrency, with no rights to the equity or any voting rights in the offering organisation (OECD, 2019). An example of the occurrence of an ICO would be once Facebook releases Libra to the market for purchase. Cryptocurrency can also be obtained through an airdrop, which occurs when a cryptocurrency user receives an allocation of cryptocurrency as part of a marketing or advertising campaign or receives cryptocurrency automatically due to the user holding other kinds of cryptocurrency in their digital wallet or e-wallet (HMRC, 2019c).

In summary, the following transactions may occur for cryptocurrency users:

1. An individual or organisation may be rewarded with cryptocurrency through a process of mining,
2. A hard fork can occur creating a new cryptocurrency,
3. An individual or organisation may receive cryptocurrency through an airdrop of cryptocurrency via either a marketing campaign or hard fork,
4. An individual or organisation may receive cryptocurrency through a donation directly from another cryptocurrency holder,
5. An individual may obtain cryptocurrency in exchange for services rendered or remuneration,
6. An individual or organisation may receive cryptocurrency in exchange for goods and services from a business that accepts cryptocurrency as a form of payment,

7. An individual or organisation may purchase cryptocurrency on an exchange platform or directly from another cryptocurrency holder in exchange for fiat currency,
8. An individual or organisation may also trade one cryptocurrency either on an exchange platform or directly with another cryptocurrency holder,
9. An individual or organisation may acquire goods and services in businesses, in exchange for cryptocurrency as a form of payment,
10. An organisation may exchange cryptocurrency as a form of remuneration to its employees or
11. An organisation may release its initial coin offering of cryptocurrency to the market.

As the use and market capitalisation of cryptocurrency increases, tax authorities have had to determine how the above transactions will be taxed in their countries. In the next section, the tax consequences of cryptocurrency transactions in various jurisdictions will be explored.

2.2 INCOME TAX CONSEQUENCES OF CRYPTOCURRENCY TRANSACTIONS

Considering the novelty of the concept of cryptocurrency, many countries have not yet explored the possible regulation and taxation of cryptocurrency transactions. The following countries' revenue services: USA-IRS, UK-HMRC, ATO and SARS are amongst those that have issued guidelines on the taxation of cryptocurrency transactions.

In SA, the regulation and taxation of cryptocurrency transactions are still being explored and communicated through the release of statements by the key government units involved, such as SARS, Financial Sector Conduct Authority (FISCA) and the SARB. Efforts to finalise the regulation of cryptocurrency in the country have led to the formation of the Crypto Assets Regulatory Working Group (CARWG) which has provided guidelines on the regulation of cryptocurrency-related transactions.

The USA, UK and Australia have not only regulated cryptocurrency-related transactions but have also issued guidelines on their taxation which, for the purpose of this study, have been chosen for benchmarking against the SARS media guidelines. The USA is one of the largest global economies, with the US Dollar being considered a universal currency (Amadeo, 2020). The USA is not only a global economy but, as mentioned above, has issued guidelines on the taxation of cryptocurrency transactions. The UK and Australia have similar tax systems to SA, which stem from British imperialism. These two countries have also formulated guidelines on the taxation of cryptocurrency transactions. SA has issued a media statement through SARS, its tax collection agency that provides guidance on determining the income tax consequences related to cryptocurrencies.

2.2.1 United States of America

Since 2015 the USA has required those citizens who engage in cryptocurrency transactions to declare their cryptocurrency activities for federal tax purposes. The IRS issued a Tax Notice in 2014, which provided guidance on the taxing of cryptocurrency transactions. The IRS has classified cryptocurrency as property, which means the transactions related to cryptocurrency are treated as property events for US Federal Tax purposes (IRS, 2014).

The IRS has identified the transactions below which would result in income tax consequences (Villamena, 2019). Trading in cryptocurrency results in long term gains or losses, with the losses being able to be offset against gains to reduce income tax, which includes the following:

- Exchanging one type of cryptocurrency for another, such as the purchase of Litecoin in exchange for Bitcoin. This event is considered taxable because cryptocurrency is being sold, thus generating capital gains or losses.
- Converting cryptocurrency to U.S. dollars or another fiat currency at a gain would be a taxable event for Federal Tax purposes because it is treated as having been disposed of, thus generating capital gains.
- Receiving payments in cryptocurrency in exchange for products or services or when a salary is paid in cryptocurrency, is treated as ordinary income at the fair market value of the cryptocurrency at the time of receipt.
- Spending cryptocurrency would lead to a taxable event and may generate capital gains or losses, which can be short-term or long-term. The reason is that by spending the cryptocurrency, the holder would be disposing of the “property” and, depending on the time between the purchase and disposal, this will be held for either a short- or a long-term.
- For those who obtain cryptocurrency through mining, this would be considered ordinary income equal to the fair market value of the cryptocurrency on the day it was successfully mined.
- Initial coin offerings, which occur when a new cryptocurrency is introduced to the market, have not been addressed by the guidelines, and also do not fall under the IRS's tax-free treatment for raising capital. As a result of this defect, the IRS considers the issuing of cryptocurrency, as ordinary income to individuals and businesses on receipt of income from initial coin offering (Villamena, 2019).

The reporting on the above transactions by USA citizens within their tax returns did not go as smoothly as expected, given the guidance and consultation provided by the IRS. In April 2019, a letter written by members of the US Congress (Congress) requested further guidance on the

tax consequences and calculations of cryptocurrency transactions. The key questions were related to cost basis methods of calculating the value of the cost of cryptocurrency, and to forks in a blockchain, such as the already mentioned 2017 fork of the Bitcoin blockchain (Rettig, 2019).

The IRS responded to the request from the members of Congress, acknowledging receipt of their letter and indicated that further guidance to the 2014 Tax Notice will be issued (Rettig, 2019). On 9 October 2019, the IRS delivered further guidance as promised, which addressed the key questions raised by USA cryptocurrency users and taxpayers (IRS, 2019b):

- When a hard fork does not result in a taxpayer obtaining new cryptocurrency, the event will not result in taxable income (IRS, 2019b). If, however, the hard fork resulted in the creation of a new cryptocurrency, which was transferred to the taxpayer, through either an airdrop or any other means to the e-wallet, the event results in taxable income, which is taxable on the day and time the new cryptocurrency has been transferred to the taxpayer. The value of ordinary income of the new cryptocurrency is equivalent to the market value of the cryptocurrency when it is received, provided the taxpayer is able to transfer, sell or exchange the cryptocurrency (IRS, 2019b).
- A soft fork does not result in the creation of cryptocurrency and, as such, no change will occur to the taxpayer's income position, as a result of the event (IRS, 2019b).
- When a taxpayer receives a bona fide gift or donation of cryptocurrency, it will not result in a taxable income, until the taxpayer disposes of the cryptocurrency either through exchange, sale or otherwise. The value of the gain or loss from the disposal would be determined based on the donor's basis, and for a loss, on the lesser of either the donor's cost or market value on the date of donation (IRS, 2019a).
- A taxpayer, who donates cryptocurrency to a charitable organisation, is not taxable, as no income, gain, or loss from the donation will be recognised. The taxpayer will be allowed a charitable contribution deduction when the donation is made, with the value based on the length of time the cryptocurrency has been held by the taxpayer (IRS, 2019a).

2.2.2 United Kingdom

UK taxpayers who engaged in cryptocurrency transactions were provided with guidelines for individuals on the taxation of cryptocurrency transactions in 2018, which followed the initial statement published by HMRC in 2014. This guidance comes after the publishing of the Cryptoassets Taskforce Final Report, which provided regulatory direction regarding cryptocurrency. The HMRC guidelines are focused on cryptocurrency transactions for

individuals (HMRC, 2018). In 2019, HMRC released further guidelines, which focused on businesses. This business related guidance focused on corporation taxation and other possible business transactions for which cryptocurrency may be used, such as loans, investments, and payment for services rendered to employees (HMRC, 2019b). The following transactions are considered to attract capital gains tax for individuals (HMRC, 2018) and corporation tax for businesses, such as companies and partnerships (HMRC, 2019b):

- Selling cryptocurrency tokens for fiat currency,
- Exchanging cryptocurrency tokens for a different type of cryptocurrency,
- Using cryptocurrency tokens to pay for goods or services, whether delivered online or physically,
- Donating cryptocurrency to another person, including to charity and
- A hard fork resulting in a split in the cryptocurrency, which will result in the new cryptocurrency taking the original cryptocurrency value as its cost for capital gains.

The above-mentioned transactions would commonly lead to the consideration of capital gains for individuals and corporation tax for businesses. However, these deals are not the only cryptocurrency transactions in which individuals and businesses engage. The mining of cryptocurrency is treated in accordance with income tax rules with the cryptocurrency value being considered as income on receipt of the award of mining, unless the mining leads to an activity of trading. For income tax purposes the trading activities are measured in terms of their profits and losses (HMRC, 2019a).

The UK guidelines, which have been welcomed by UK taxpayers, included additional guidance, which explained the consequences for the fork of a blockchain. The guidelines were tailored to cover the taxation of the cryptocurrency transactions of both individuals and businesses, which made the process clearer to UK taxpayers (Denny & Winters, 2019).

2.2.3 Australia

Australian citizens have been provided with guidelines by the ATO in 2014, with the ATO intensifying their efforts to assist taxpayers in filing their activities related to cryptocurrency in 2017. In the 2019 tax year, the ATO communicated its intention to cross-reference data from the Australian Cryptocurrency Exchanges to that of filed tax returns. The data-matching program is expected to assist the ATO in ensuring that it has accurate data and that people who have transacted in cryptocurrency report the appropriate transactions. This data matching program covers the 2014-15 to 2019-20 financial years (ATO, 2019a).

The ATO recognises cryptocurrency as property. As such, transacting in cryptocurrency would result in Capital Gains Tax (ATO, 2019b). The ATO provided guidelines and updates to the Australian taxpayers regularly, with the initial statement providing Bitcoin tax guidelines and later updating this advice with information on other cryptocurrency transactions. The following items have been identified as taxable cryptocurrency transactions:

- Selling or donating cryptocurrency,
- Trading or exchanging cryptocurrency, which includes the disposal of one cryptocurrency for another, e.g. Bitcoin for Binance Coin,
- The conversion of cryptocurrency to fiat currency, such as Australian dollars,
- The use of cryptocurrency to acquire goods or services,
- The receipt of cryptocurrency through an airdrop and
- The proceeds from a sale of a new cryptocurrency obtained via a hard fork.

Concerning the use of cryptocurrency for business activities such as mining, trading in cryptocurrency and exchanging platforms, the trading stock rules apply, and not the CGT rules, because these cryptocurrency transactions are revenue related (ATO, 2019b). The ATO has regularly communicated with taxpayers and provided tax guidelines, as is evidenced by their website, which is regularly updated, based on developments in the cryptocurrency space.

2.2.4 South Africa

In 2018, the SARS issued a media statement providing guidelines to SA citizens on the taxation of cryptocurrency transactions for the first time (the SARS media guidelines). The media guidelines are not in the form of an Interpretation Note and therefore are not an “official publication” as defined (Tax Administration Act, 2012). The SARS media guidelines indicate that normal income tax rules per the Act, will continue to apply and that cryptocurrency gains or losses must be declared as part of taxable income. The SARS media guidelines further provide that cryptocurrency is not considered a currency for tax purposes, but an intangible asset (SARS, 2018).

The transactions, which are considered for normal income tax purposes or capital gains tax, depending on the circumstances of the gains and losses, are as follows:

- When a taxpayer acquires cryptocurrency through mining, thus giving rise to an immediate accrual or receipt based upon the success of mining activities. The taxpayer may either sell or exchange the acquired cryptocurrency. This process will be considered as either a normal cash transaction or a barter transaction,

- The taxpayer may exchange local fiat currency (Rand) for a cryptocurrency (or vice versa) by using a cryptocurrency exchange platform, and
- A taxpayer may acquire goods or services through an exchange of cryptocurrency. This kind of transaction is regarded as a barter transaction, to which normal barter transaction rules apply (SARS, 2018).

The SARS media guidelines did not elaborate or clarify what the normal cash or barter transaction rules would constitute, thus assuming that the taxpayers would possess this knowledge. The guidelines also did not provide in-depth clarification for the SA cryptocurrency users engaging in any of the above transactions.

In January 2019, the Tax Laws Amendment Act 23 of 2018 was signed into law, with the aim of preventing abuse or tax evasion by cryptocurrency users in SA (Taxation Laws Amendment Act 23 of 2018, 2019). The Amendment Act extended the provisions applicable to ring-fencing of assessed losses which had been amended to include cryptocurrency transactions. These guidelines indicated that any losses from trading in cryptocurrency would be ring-fenced and could not be set off against any other profit. The definition of financial instruments was also amended to include cryptocurrency (which conflicts with the earlier statement that cryptocurrency is an intangible asset) (Wilkinson, 2019).

2.3 TAX LITERACY

In the study, an assessment of the understanding of the income tax consequences of cryptocurrency transactions by the SA taxpayers was conducted, which may be referred to as a specific application of tax literacy in a particular context. As the study focused on the tax literacy of SA citizens, the literature review explored the concept of tax literacy.

2.3.1 Financial literacy

Tax Literacy is a component of Financial Literacy, which focuses on an individual's understanding, comprehension and numerical skills in terms of tax-related matters within their local and international jurisdiction (Bornman & Wassermann, 2020). Tax literacy has a strong link to financial literacy; thus, a definition of tax literacy would not be complete without including a description of financial literacy. Financial literacy is a broad concept, which encapsulates tax and personal financial literacy. Unlike tax literacy, financial literacy is a well-researched topic, with many authors defining financial literacy (Bornman & Wassermann, 2020). For this study, the definition of the Organisation for Economic Co-operation and Development (OECD) and the few studies, which have linked financial literacy to tax literacy, will be considered. It is worth noting here that Brackin (2014) stated that, as part of the ongoing campaigns promoting

financial literacy, the Australian government was urged to ensure that financial literacy, including tax literacy, should form part of the national education curriculum.

Financial Literacy has been defined by the OECD as the combination of awareness, knowledge, skill, attitude and behaviour necessary to make informed financial decisions and eventually attain individual financial wellbeing (OECD, 2011). Financial literacy can be defined as the ability to process economic information, to make informed decisions about one's financial planning, wealth accumulation, debt and retirement savings (Discovery, 2018). These financial decisions have a tax component, through either tax planning, understanding of the tax consequences of the choice of financial planning vehicles to accumulate wealth, whether to reduce or use debt in accumulating wealth. Financial literacy is further defined as the ability to make informed judgements and to take effective decisions regarding the use and management of money (Brackin, 2014).

2.3.2 Tax literacy

Tax literacy is less well researched and is notably a newer concept than financial literacy (Cvrlje, 2015). Tax literacy is considered a key tool to ensure improved compliance, as per the study performed by Ramona-Anca (2015). Amongst the few authors who have attempted to focus their studies on tax literacy, Cvrlje (2015), Bornman and Wassermann (2018) provided definitions. Tax literacy is defined as the ability of a person to read and understand tax returns, perform tax calculations on their own and be aware of the tax risks in the financial environment, either in a local or international context (Cvrlje, 2015). Another definition of tax literacy is that it is a self-motivated process by a taxpayer used to acquire the requisites skills and to accumulate the confidence to be aware of and understand factors, which would influence tax decisions and the related consequences of those decisions. Tax literacy includes knowing where and from whom to obtain further assistance on complicated tax issues and how to use the knowledge obtained from this assistance to make informed decisions with respect to various taxable transactions (Bornman & Wassermann, 2020).

The above definitions indicate that tax literacy includes an individual's confidence in accurately, and independently completing the tax returns for both local and international financial affairs without requiring much assistance, except when dealing with highly complicated transactions. This confidence is acquired through a journey of learning to understand the tax compliance requirements and the consequences of non-compliance.

In a study by Cvrlje (2015), a link is made that within a tax literate society, the levels of non-compliance are reduced and overall tax morale is improved, with the citizens actively participating in the tax arena, thus increasing the revenues collected. It is, therefore, critical for

the country's tax authority to provide its taxpayers with sufficient, appropriate, clear and continuous guidance, in order to improve their understanding of the requirements of the tax legislation and consequences of non-compliance, as well as the ability to accurately complete tax returns and calculate tax consequences (Brackin, 2014).

The tax literacy definition adopted for the purpose of this study will be from a combination of the definitions of the interlinked concepts of Financial and Tax Literacy. Tax literacy relates to the taxpayer's understanding of the consequences of financial transactions engaged in, based upon decisions taken regarding their financial planning, wealth accumulation and retirement provision in compliance with the tax regulations; combined with the knowledge and skills necessary to independently and accurately complete the requisite tax returns for both local and international tax consequences.

Tax literacy includes the ability to understand tax consequences, as the more complex the process, the more support the taxpayer needs in order to understand tax consequences. It can be noted that the SARS statement has partially dealt with possible cryptocurrency transactions. Some of these transactions have complexities that, due to their potential tax consequences, make their completion difficult for taxpayers. Considering the intricacy of these cryptocurrency transactions and the tax literacy definitions presented above, lead to the question:

"Are South African taxpayers able to determine the normal tax consequences of cryptocurrency transactions, using the current normal income tax legislation and guidelines available?"

3 METHODOLOGY

3.1 RESEARCH OBJECTIVES AND RESEARCH QUESTIONS

The purpose of this research study is to investigate and test the ability of SA taxpayers to determine the income tax consequences of cryptocurrency transactions. The descriptive study will ascertain whether SARS should consider the provision of further guidance to SA taxpayers to enable them to more effectively determine the income tax consequences of cryptocurrency transactions, and thereby assist SARS to provide these more comprehensive and complete guidelines. It also aims to suggest further insights to SARS on the complexity and understandability of the income tax consequences of cryptocurrency transactions and to suggest the provision of more complete guidelines if appropriate. The primary research question of this study is:

Are South African taxpayers able to determine the income tax consequences of cryptocurrency transactions after consulting SARS media guidelines?

To answer the primary research question, the study developed the following sub-questions and corresponding objectives described in Table 1 below:

Table 1: Research sub-questions and objectives

Research sub-questions	Research Objectives
Sub-question 1: Have the current SARS media guidelines comprehensively addressed all the cryptocurrency transactions?	To ascertain if the current SARS media guidelines comprehensively addressed all the cryptocurrency transactions.
Sub-question 2: Do the existing SARS media guidelines provide taxpayers with a better understanding of the income tax consequences of cryptocurrency transactions?	To ascertain if the existing SARS media guidelines on the income tax consequences of cryptocurrency transactions, would provide taxpayers with a better understanding of the income tax consequences of transacting in cryptocurrency.
Sub-question 3: What would the income tax consequences in terms of the Act be, for the cryptocurrency transactions not addressed by the SARS media guidelines?	To ascertain what the income tax consequences in terms of the Act would be, for the cryptocurrency transactions not addressed by the SARS media guidelines.
Sub-question 4: Are taxpayers with a sound foundation of tax knowledge better able to determine the income tax consequences of cryptocurrency transactions?	To investigate if taxpayers with a good foundation of tax knowledge are better able to determine the income tax consequences of cryptocurrencies.

The propositions of the study stemming from the primary research question are as follows:

H_0: SA taxpayers are able to determine the income tax consequences of cryptocurrency transactions, using the Act and SARS media guidelines.

H_1: SA taxpayers are unable to determine the income tax consequences of cryptocurrency transactions, using the Act and SARS media guidelines.

3.2 RESEARCH DESIGN

3.2.1 Research paradigm

The research paradigm provides a setting for the research design because it affords a guiding philosophical belief. The research study focuses on taxation, which is considered a multidisciplinary topic, given the possible accounting, law and other social sciences' perspectives of the topic (McKerchar, 2008). The legal or doctrinal research perspective is used in this study's research design. The research paradigms common to taxation studies include Positivism, Interpretivism, Advocacy and Pragmatism.

3.2.2 Doctrinal research approach

The doctrinal research method employs legal positivism in answering the research questions through a deductive method of setting propositions (Frecknall-Hughes, 2016). This approach involves a systematic process for testing propositions through an analysis of laws, regulations and statutory provisions. Through doctrinal research, a researcher develops theories from the in-depth analysis performed (Kharel, 2018).

The first phase of this study utilised the doctrinal research method, through the evaluation of regulations to address the first research question. This method utilised an in-depth document analysis of the cryptocurrency guidelines issued by tax authorities in various benchmarked countries, as well as the application of the Act to the cryptocurrency transactions. The findings based on the benchmarking of various countries' guidelines formed part of developing the experimental cross-sectional survey questionnaire. Guidance was proposed in terms of the Act for the cryptocurrency transactions not addressed by the SARS media guidelines, or in those of the benchmarked countries.

3.2.3 Quantitative approach

The positivist paradigm employs a quantitative approach to analyse data in addressing the research questions and sub-questions. The quantitative approach is a process for testing objective theories by identifying and assessing a relationship among variables. The variables can be measured, allowing for the analysis of data through the use of statistical procedures.

The quantitative approach supports the positivist paradigm by deductively testing the theories of those researchers who engage in this form of exploration (McKerchar, 2008).

The second phase of this study focused on the quantitative approach, drawing from the positivist paradigm employed in the collection and analysis of data to address the third and fourth research questions. This approach made use of survey research methodology to collect the quantitative data. The experimental survey questionnaire, which provided the primary data to explore the research problem, was analysed deductively to address the problem. The cross-sectional experimental survey questionnaire was conducted on participants to obtain an understanding of the ability of participants to determine the income tax consequences for cryptocurrency transactions.

3.3 POPULATION AND SAMPLING

3.3.1 Population characteristics

The population of a study is best described as the collection of all the people or items which a researcher wishes to understand, whilst sampling involves the process of selecting portions from the said collection for investigation (Rahi, 2017). This study focuses on SA taxpayers, who transact in cryptocurrency, which constitutes approximately 21.1 million registered individual taxpayers (natural persons and not companies or trusts). 4.9 million of these registered individual taxpayers submitted tax returns in the 2018/19 tax year (SARS, 2019). However, it is not clear how many of these 21.1 million registered individual taxpayers engage in cryptocurrency transactions because such information is not openly disclosed.

This study focuses on SA taxpayers, who transact in cryptocurrency and, as such, it is pivotal to assess the level of financial and tax literacy of SA citizens. SA citizens are characterised as having high general literacy levels at 94.4% in 2015 (UNESCO Institute of Statistics, 2021). However, SA citizens have low financial literacy, of which tax literacy is a part, with the national score for the average financial literacy having been 48.4 between 2005 and 2009 (Nanziri & Leibbrandt, 2018), a figure which increased to 55 in 2015 (Roberts *et al*., 2016). Financial literacy has been noted as being higher amongst individuals with higher education and income levels who reside in the economic zones, with a recent study still portraying only 40.57% of the population as being financially literate (Nanziri, Lwanga & Olckers, 2019). Tax literacy is defined as being part of the broader concept of financial literacy, thus, consequent upon the poor financial literacy scores and rates, the tax literacy of SA citizens also can be assumed to be low.

Owing to the complexity of cryptocurrency transactions, the study utilised students studying the PGDA and trainee accountants registered for the APC Programme through UCT in SA. The students and trainee accountants were selected as study participants because they have an in-depth understanding of income tax consequences related to the latest SA income tax regulations, as a pre-requisite to passing the PGDA and South African Institute of Chartered Accountants (SAICA) professional exams. The trainee accountants are normally in their second year of training or later and are employed by audit and accounting firms, government organisations, financial services, manufacturing and/or mining companies while completing their training. These participants are taxpayers and, thus, would have submitted personal income tax returns. Beckbessinger and Dingle (2018) observed that cryptocurrency enthusiasts and general investors fall within the ages of 25 – 44, the age range of most of the trainee accountants participating in this study.

UCT has approximately 450 students studying PGDA and approximately 1100 trainee accountants attending the APC course. The study sample was selected from this population to perform the experimental survey questionnaire and to maintain the purposive strategy of sampling because of these students' timeous availability. Table 2 below represents the population used in this study:

Table 2: Number of students available for performing research test

Description of Participants	Approximate Number of Students	Representation of Population
PGDA Students	450	29 %
APC Trainee Accountants	1100	71 %
Total Population	**1550**	**100 %**

3.3.2 Population sampling

There are two commonly used sampling methods − probability and non-probability sampling. During the latter approach, the probability of a subject being selected is unknown to the researcher. Convenience or purposive selection is a common strategy within non-probability sampling, which is characterised by the convenience of having easy access to the sample participants during data collection, which are representative of the population (Rahi, 2017). This study utilised the non-probability sampling method, through the use of a convenience sampling strategy. The sample was convenient because the probability that a participant was selected was unknown, due to the distribution method utilised and the researcher's ease of access. The study's experimental survey questionnaire was provided to the entire population of both the PGDA students and APC trainees; those individuals who completed this test comprised the sample. The distribution of the sample is provided in Table 5 in 4.3.1.

3.4 DATA COLLECTION

3.4.1 Document analysis

Document analysis is a process of research with documented material to draw empirical knowledge and answer research questions. Document analysis involves the utilisation of data sourced through government records, regulations and statistics, and journals. The data assists the researcher to gain insight into a current research problem, support the research question from the data available and generate new knowledge of the research question (Gross, 2018).

In this study, guidelines and regulations issued by the countries identified earlier in this report on the income tax consequences of cryptocurrency transactions, listed in Table 3 below, were utilised to perform an in-depth document review. The SARS media guidelines on income tax consequences of cryptocurrency transactions were benchmarked against those countries' guidelines and regulations. An analysis was performed to identify the gaps between the benchmarked guidelines in order to support a recommendation to SARS to update or provide subsequent guidelines for its taxpayers in relation to cryptocurrency transactions.

Table 3: Summary of documents reviewed for the study

Document	Description	Source
IRS Tax Notice 2014-21	Virtual currency tax guidelines	US – IRS
Revenue Rule 2019-24	Updated virtual currency tax guidelines	US – IRS
Cryptoassets: tax for businesses	Policy paper on cryptoassets: tax for businesses	UK – HMRC
Cryptoassets: tax for individuals	Policy paper on cryptoassets: tax for individuals	UK – HMRC
Tax treatment of cryptocurrencies	ATO guidelines on the tax treatment of cryptocurrencies	Australia – ATO
SARS media guidelines on the tax treatment of cryptocurrencies	SARS' stance on the tax treatment of cryptocurrencies	SA – SARS
Income Tax Act 58 of 1962	South African Income Tax Act	SA – SARS
Act No. 23 of 2018: Taxation Laws Amendment Act, 2018	Income Tax Law Amendment Act	SA – SARS

3.4.2 Experimental survey questionnaire

The quantitative approach commonly utilises experiments and survey research in answering the research question. The experiments are aimed at testing the hypothesis developed in the study, through testing with the identified variables. The experimental data can be analysed using quantitative statistical techniques (Pelz; Bill, 2019). A controlled experiment is utilised,

whereby the sample is randomly divided into two groups − group one is controlled and group two is not controlled (McKerchar, 2008).

Surveys are a form of quantitative approach technique for collecting data. The survey questionnaires are commonly structured with the ability of being distributed via various forms such as through email, online platforms, social media and in person. The questionnaires are either open-ended or closed-ended in nature. The closed-ended questionnaires allow for a closed type of response in which participants choose an answer. These questionnaires are exhaustive in options and provide mutually exclusive answers (Kabir, 2016). Surveys are synonymous with experiments and are useful tools for the testing of a hypothesis (McKerchar, 2008).

The data collection process utilised in this study was a closed-ended survey questionnaire which provides a perfect platform for offering/receiving one answer. The use of this design allowed the survey to be formatted as a test, which allowed for one correct answer. This tool was a dichotomous questionnaire that had either a correct or incorrect answer, despite the multiple options presented to the participants. These multiple choices ensured that survey participants did not just guess the answer, but allowed for them to engage with the scenario presented and think through their answer selection process.

To achieve the experimental approach of the survey, there was a random split of the participants into two groups. At the inception of the questionnaire, the participants were randomly assigned either to a group that would be directed to the SARS media guidelines on income tax consequences of cryptocurrency transactions or to one that would not have access to these guidelines. Both participant groups were issued with a test comprising two sections, one with screening questions and one that tested the income tax consequences of cryptocurrency transactions as identified in Table 4 which is presented in the following chapter. The screening questions dealt with general tax concepts and were employed by the researcher to gain an understanding of the participants' level of income tax literacy.

A typical situation facing the SA taxpayer was simulated through the use of the above experiment and was given to the participants, who were split between those with an advanced and limited understanding of income tax consequences. The participants were allocated as having advanced or limited knowledge, with the former being those who passed and the latter those who failed the screening questions, these results are discussed in the next chapter. The experimental study comprised four groups of participants; one group with an advanced understanding of income tax consequences, one group with a limited understanding of income tax consequences. One group from each category had access to SARS media guidelines while the other did not. The existence of two control groups ensured that the study results provided

insight into whether the unavailability of SARS media guidelines was the reason for the low results or if it was attributable to the tax literacy of the participants.

3.5 DATA ANALYSIS METHOD

The deduction method is best suited when the research study commences with a hypothesis, which is often developed from the literature review, and the research strategy is then designed to test this hypothesis (Saunders, 2017). The deductive method adopted for this doctrinal research utilised an in-depth document analysis of the collected data that identified the gaps between the benchmarked income tax guidelines, and the results formed part of the second phase of the study.

The deductive method of analysis is commonly used when a study employs the quantitative approach for collecting data. This approach employs statistical techniques to analyse and present findings. The quantitative data is collected through experimental techniques which enable the researcher to utilise either descriptive or inferential statistics to obtain an understanding of the relationships among variables (Soiferman, 2010). These descriptive statistics portrayed the basic characteristics of the study's collected data through a graphically depicted summary. In contrast, the inferential statistics provided a more practical perspective of these measurements, which allowed the researcher to draw conclusions on trends within the sample results (Trochim, 2020). The deductive method of analysis was utilised in this study because it supported the quantitative data collection approach outlined in Section 3.4.2 above.

The data from the test questionnaire was analysed quantitatively to statistically test the hypotheses of the study set out in Section 3.1 above, using Excel 2016 and Stata 16 programs to collate the results. An analysis was performed on the data created by Excel 2016 and Stata 16, using a combination of descriptive and inferential statistics. The descriptive statistical techniques were utilised to provide a visual understanding of the results and description of the participants, through the presentation graphs depicting the identified trends. The implementation of inferential statistics techniques identified patterns in the answers provided by participants, together with a comparison of answers between groups, in order to accept or reject the hypotheses and answer the study's research question.

The inferential statistics techniques included the Levene's test, Independent samples t-test, Chi-squared test and paired t-test. Levene's test of equality of variances was utilised to assess the assumption of the equality of variances for a particular variable for two groups. The null hypothesis for Levene's test states that there is a homogeneity of the variances tested. The Chi-square test of association was used to evaluate associations between categorical variables in the performance in the cryptocurrency questions. In the Chi-Square test of

association, the null hypothesis is that no relationship exists between the categorical variables being evaluated within the population. The independent samples t-test compares the means of two independent groups in order to determine whether the means of these groups are statistically significant to each other. The paired-T-test determines whether the mean of the dependent variable is the same in two related groups, with the assumption that there are no significant 'outliers' and that the distribution of the differences is approximately normally distributed.

3.6 ETHICAL CONSIDERATIONS

In terms of the UCT Commerce Ethics' research policy, any research which involves the use of living people to collect data requires an ethical clearance. The UCT Commerce Ethics committee, approved the research project and granted an Ethical Clearance Certificate (REF: REC 2019/10/038) (see Appendix A). The research policy requires additional approval from the Director of Student Affairs, for any research which utilises students of the university as participants. The Director of Student Affairs granted permission for the researcher to utilise students and trainee accountants studying at UCT as participants (see Appendix B). Both these ethical approvals were obtained before the commencement of the data collection.

This study was conducted through a survey questionnaire, the first page of which comprised a consent form which informed participants of their rights in relation to the study. It also clearly articulated the purpose of the research and informed participants that their involvement in the study was voluntary and could be withdrawn at any time. Only after the participants had clicked "agree" on the consent form could they continue with the survey. The identity (names and students numbers) of the participants in the study was not required, thus, ensuring complete anonymity of participants.

3.7 LIMITATIONS

The study focused on the cryptocurrency transactions as part of the accumulation or disposal of cryptoassets, such as Bitcoin. Tokens, both security and utility, such as Ethereum, were not part of the research. The focus was on the income tax consequences of cryptocurrency transactions in relation to the normal income tax legislation, which included capital gains tax considerations. The VAT, estate duty and other tax consequences were not considered and, thus, provide scope for further research. The researcher conducted the study in accordance with the SARS media guidelines released on 6 April 2018 because no further guidelines had been issued regarding the income tax consequences of cryptocurrency transactions. The developments in this area had only been in the form of a Tax Amendment Act, which was not meant to offer further guidance, but to update the Act.

4 RESEARCH FINDINGS AND DISCUSSION

4.1 INTRODUCTION TO RESEARCH FINDINGS

As outlined in the research methodology, the collection of data was with a combination of document analysis and an experimental survey questionnaire. Section 4.2 presents the proposed guidelines to address the gaps identified during the document review in the benchmarking of guidelines of the jurisdictions against SARS media guidelines. Section 4.3 presents the findings from the experimental survey questionnaire. Section 4.3 is broken up into two subsections, which are the presentation of demographics and the analysis of the completed experimental surveys.

4.2 CRYPTOCURRENCY TRANSACTIONS AND RELATED TAX CONSEQUENCES

The section below presents the findings from the benchmarking of the SARS media guidelines against the selected jurisdictions (USA, UK and Australia), that have issued guidelines to their taxpayers. In this section, a summary of the income tax consequences is identified in section 2.2. Thereafter follows a discussion on the proposed recommendations for the gaps identified in the benchmarking based on the Act in its current form (SARS, 2018, 2019) and a comparison of these proposals with the guidelines of the selected jurisdictions.

4.2.1 Summary of income tax consequences of cryptocurrency transactions

The benchmarking process used in this study was performed using the documents listed in Table 3 above. The income tax consequences of the cryptocurrency transactions identified in Section 2.1.4, which were addressed in the guidelines issued by the selected jurisdictions, are summarised in Table 4 below.

The SARS media guidelines were consistent with those of other jurisdictions regarding the income tax consequences of cryptocurrency transactions. The issued SARS media guidelines addressed only six of eleven common cryptocurrency transactions, which leaves room for improvement. These guidelines did not sufficiently address the business users of cryptocurrency, as compared with those of other jurisdictions. The SARS media guidelines lacked worked examples, which had been included in the other three tax authorities. Section 4.2.2 proposes guidelines on the following five cryptocurrency transactions not already addressed in the SARS media guidelines:

- Blockchain hard fork, resulting in new cryptocurrency over and above the original,
- Receiving an airdrop of cryptocurrency (marketing or advertising campaign),
- Making (as opposed to receiving) salary payments in cryptocurrency,
- Donating cryptocurrency to another person, including to charity, and
- Initial coin offerings, which is the sale of new cryptocurrency made to the market.

Table 4: Income tax consequences of cryptocurrency transactions identified in benchmarking

No.	Cryptocurrency Transaction identified	USA (IRS)	UK (HMRC)	Australia (ATO)	South Africa (SARS)
1	Exchanging of one type of cryptocurrency for another type of cryptocurrency.	Capital gain, if held as a capital asset and gross income, if held as trading stock.	For individuals, it is considered for Capital Gains Tax, except when an individual is considered a trader and as such normal income tax rules apply. For businesses, it is corporation tax, except when it is held for investment, which requires a partnership (if individuals) and sole trader to treat it as a capital gain.	Capital Gains Tax. If a business, trading stock rules apply.	Capital gain, if held as a capital asset and gross income, if held as trading stock.
2	Exchanging of any type of cryptocurrency for fiat currency, or vice versa.	Capital gain, if held as a capital asset and gross income, if held as trading stock.	For individuals, it is considered for Capital Gains Tax, except when an individual is considered a trader and as such normal income tax rules apply. For businesses, it is corporation tax, except when it is held for investment, which requires a partnership (if individuals) and sole trader to treat it as a capital gain.	Capital Gains Tax. If a business, trading stock rules apply.	Capital gain, if held as a capital asset and gross income, if held as trading stock.

No.	Cryptocurrency Transaction identified	USA (IRS)	UK (HMRC)	Australia (ATO)	South Africa (SARS)
3	Receiving cryptocurrency in exchange for products or services.	Ordinary income at the fair value of the cryptocurrency.	Ordinary income at the fair value of the cryptocurrency.	Ordinary income at the fair value of the cryptocurrency.	Gross income at the fair value of cryptocurrency received.
4	Receiving cryptocurrency as payment of salary for employment purposes.	Ordinary income at the fair value of the cryptocurrency.	Ordinary income at the fair value of the cryptocurrency.	Ordinary income at the fair value of the cryptocurrency.	Gross income at the fair value of cryptocurrency received.
5	Obtaining cryptocurrency through rewards from mining processes.	Ordinary income at the fair value of the cryptocurrency.	Ordinary income at the fair value of the cryptocurrency.	Ordinary income at the fair value of the cryptocurrency.	Gross income at the fair value of the cryptocurrency. The rewards of cryptocurrency are considered to be held as trading stock until it is exchanged for either another cryptocurrency or fiat currency.
6	**Blockchain hard fork, resulting in new cryptocurrency over and above the original (Bitcoin – Bitcoin Cash).**	**Ordinary income at the fair value of the new cryptocurrency.**	**Capital Gains Tax, once the new cryptocurrency is disposed of.**	**Capital Gains Tax for individuals and trading stock rules for businesses, once the new cryptocurrency is disposed of.**	**No guidelines were provided.**
7	**Receiving an airdrop of cryptocurrency.**	**Ordinary income at the fair value of the new cryptocurrency.**	**Capital Gains Tax, once the new cryptocurrency is disposed of. Ordinary income at the fair value**	**Ordinary income at the fair value of the cryptocurrency at the time of receipt.**	**No guidelines were provided.**

No.	Cryptocurrency Transaction identified	USA (IRS)	UK (HMRC)	Australia (ATO)	South Africa (SARS)
	(marketing or advertising campaign)		**of the cryptocurrency on receipt, if received for services or mining activities.**		
8	Making payments in cryptocurrency for products or services received.	Capital gain, if held as a capital asset and gross income, if held as trading stock.	For individuals, it is considered for Capital Gains Tax, except when an individual is considered a trader, as such normal income tax rules apply. For businesses, it is corporation tax, except when it is held for investment, which requires a partnership (if individuals) and sole trader to treat it as a capital gain.	Capital Gains Tax. If a business, trading stock rules apply.	Normal barter transactions rules apply.
9	**Making salary payments in cryptocurrency.**	**Capital gain, if held as a capital asset and gross income, if held as trading stock.**	**For individuals, it is considered for Capital Gains Tax, except when an individual is considered a trader as such normal income tax rules apply.** **For businesses, it is corporation tax, except when it is held for investment, which requires a partnership (if individuals) and sole trader to treat it as a capital gain.**	**Capital Gains Tax.** **If a business, trading stock rules apply.**	**No guidelines were provided.**

No.	Cryptocurrency Transaction identified	USA (IRS)	UK (HMRC)	Australia (ATO)	South Africa (SARS)
10	Donating cryptocurrency to another person, including to charity.	Capital Gains Tax, except for donations to charitable organisations, which are excluded from capital gains tax.	Capital Gains Tax, except for donations to charitable organisations, which are excluded from capital gains tax.	Capital Gains Tax	No guidelines were provided.
11	Initial coin offerings, which is when the new cryptocurrency is introduced to the market.	No guidelines were provided.	No guidelines were provided.	No guidelines were provided.	No guidelines were provided.

4.2.2 Analysis of the transactions which were not addressed in the SARS media guidelines

4.2.2.1 Blockchain fork

The benchmarking analysis identified that the SARS media guidelines did not address the income tax consequences of the forks in a blockchain namely, a soft or hard fork. The IRS, HMRC and ATO have all addressed blockchain forks in the guidelines issued within their jurisdictions.

The phenomenon of blockchain forks resulted in the call for guidance to the IRS before the issuing of the Revenue Rule 2019-24, which addressed the issue. The guidelines provide that when the fork does not result in a taxpayer obtaining new cryptocurrency, the event will not result in taxable income. The basis is that no change will occur to the taxpayer's income position as a result of the event (IRS, 2019b). If, however, the fork results in the creation of a new cryptocurrency, which transfers to the taxpayer, through either an airdrop or any other means to the user's e-wallet, then the event results in taxable income. The event is taxable on the day and time the new cryptocurrency is transferred to the taxpayer. The value of ordinary income of the new cryptocurrency is equivalent to the market value of the cryptocurrency when it is received, provided the taxpayer is able to transfer, sell or exchange the cryptocurrency (IRS, 2019b).

In its guidelines on the treatment of the income tax consequences of a blockchain fork, the HMRC has addressed both the soft and hard fork, with more emphasis on the latter. The income tax consequence of the hard fork is capital gains for individuals and corporation tax for businesses on the disposal of the new cryptocurrency. The allocation of the cost of the original cryptocurrency between the original and new cryptocurrency for capital gains would be derived from the costs of the original and the values of the two cryptocurrencies cryptocurrency value at the date of the fork (HMRC, 2019a).

The guidelines issued by ATO specifically deal with the hard fork as capital gains tax for individuals who hold the old and new cryptocurrency for investment purposes, and as trading stock for businesses, once the new cryptocurrency is disposed of. The cost of the new cryptocurrency to be recognised in the calculation of the capital gains is zero (ATO, 2019b).

In the guidelines issued by the IRS, HMRC and ATO, between the two forks that occur, the hard fork is the significant fork of the blockchain, due to the complexities it brings because it results in the creation of new cryptocurrency and an increase to the taxpayer's income position. The soft fork does not bring about any changes to the taxpayer's income position but to the

blockchain code. In deriving a recommended income tax consequence for the hard fork for SA taxpayers, consideration is given to the guidelines issued by the three other tax authorities. The premise that the hard fork results in an increase to a taxpayer's income, leads to the question of whether this gain would be capital or revenue in nature. The IRS treats the income as revenue in nature, regardless of whether the taxpayer is a business or an individual. The consideration of the taxpayer's income-earning activities by the HMRC and ATO leads to two possible treatments for the new cryptocurrency, being either capital gains or revenue income.

In the Act, the intention of the taxpayer plays a vital role in the decision as to whether the receipt or accrual is capital or revenue in nature (*Commissioner for Inland Revenue v Stott* 1928 (3), SATC 253 (A)). The onus of proof is on the taxpayer, to prove the intention of the income activities engaged in (Tax Administration Act, 2012). The taxpayer would have to prove that the receipt of the new cryptocurrency received is capital proceeds, failing which it would be treated as revenue in nature. A taxpayer benefits from a hard fork through receiving the new cryptocurrency as a result of being a holder of the original cryptocurrency. An example would be the creation of Bitcoin Cash as a result of a hard fork from Bitcoin. The holders of Bitcoin would benefit from the hard fork, by receiving Bitcoin Cash due to holding Bitcoins. Therefore, the basis of the intention would be those applicable to the original cryptocurrency, prior to the hard fork.

A taxpayer may acquire cryptocurrency as a long-term investment; however, the taxpayer will still be required to prove this is a long-term investment to the Commissioner on disposal. The proof of long-term investment of cryptocurrency can be tricky, due to the particular characteristic, comparable in nature to Kruger Rands, that they are not income-producing assets. Cryptocurrency does not yield any fruits, such as dividends or interest, as would be expected from other long-term investments; the yield is in the appreciation of the market value of the cryptocurrency. Given this characteristic of cryptocurrency, the cryptocurrency which the taxpayer has held would be regarded as held for trading unless proved otherwise by the taxpayer. The case of *Commissioner for Inland Revenue versus Nel* 1997, 59 SATC 349, would assist in the proof of the taxpayer treating the new cryptocurrency proceeds on disposal as capital in nature. The key observation, in this case, was that even though the Kruger Rands acquired for their value appreciation are suggestive of being revenue in nature, the Court concluded that when held for a long term the receipts were indeed capital in nature. On the other hand, the case of *Commissioner for Inland Revenue versus Nussbaum* 1996, 58 SATC 283 provides that if the taxpayer's intention changes from holding for investment purposes to a profit-making scheme, the proceeds would be gross income. This particular case further provides that if the taxpayer frequently disposes of investments, s/he may, in fact, be pursuing a profit-making scheme. The frequency is viewed on the taxpayer's income activities over a

period, which would assist in determining if the disposals of the taxpayer's cryptocurrency are tantamount to a profit-making scheme. The principle of the case can be adapted to those of the taxpayer holding the original cryptocurrency for long-term investment, but subsequently engaging in a profit-making scheme ("trading" for the purposes of the study) for the new cryptocurrency.

The SARS media guidelines indicated that when a taxpayer acquires cryptocurrency through mining activities this would give rise to an immediate accrual or receipt on the success of mining activities and the new cryptocurrency will be held as trading stock until it is sold or exchanged for cash. The hard fork reward as a result of holding cryptocurrency obtained in mining would therefore be treated as revenue in nature for the miner. In the case of a taxpayer other than a miner, s/he would have to prove the intention at receipt of the new cryptocurrency and during subsequent holding is of a capital nature. The basis of the intention at receipt would thus be that of the original cryptocurrency, prior to the hard fork. On disposal of the new cryptocurrency, a taxpayer would include the proceeds and profit in normal income as if engaging in trading or mining activities. A taxpayer may acquire cryptocurrency as a long-term investment; however, the taxpayer will still be required to prove this is a long-term investment to the Commissioner, due to its unique characteristics.

On the disposal of the cryptocurrency, the proceeds will be treated as revenue income if the individual taxpayer engages in trading or mining activities. If the taxpayer holds the new cryptocurrency for investment purposes the proceeds on the disposal will be capital in nature. The Eighth Schedule of the Act addresses the disposal of capital assets and the related calculation of capital gains tax.

The timing of the tax consequences for any new cryptocurrency of a revenue nature would be taxable at the earlier amount of the accrual to or receipt by the taxpayer, per the Gross Income definition. On receipt of the new cryptocurrency, the taxpayer would add this value to their trading stock, and on disposal, the proceeds accruing would be gross income (Income Tax Act, 1962). In contrast, the taxpayer whose new cryptocurrency would be capital in nature would establish a base cost at acquisition, while a capital gain would arise only at the time of the disposal (through either sale, exchange or donation) of the new cryptocurrency, as per the Eighth Schedule prescribed in paragraph 13 of the Act (Income Tax Act, 1962).

The next consideration would be the determination of the value which will be used to calculate the base cost of capital gains or cost of trading stock, on the acquisition of the new cryptocurrency. If the new cryptocurrency is revenue in nature, a financial instrument as defined in Section 1, would be included in the taxpayer's trading stock in terms of Section 22 (1) (a). The taxpayer would have to include the new cryptocurrency in trading stock, in concert

with Section 22(4), which requires that the cost to be included is equal to the current market price upon receipt (Income Tax Act, 1962). Considering the nature of cryptocurrency and the complexities of its existence, the value of the new cryptocurrency would be difficult to determine at the point of the hard fork, because no trading activity or reliable market figures may be available. In the application of this requirement, it is possible that, owing to the lack of available reliable market figures, the amount of inclusion may be nil at the time of receipt. When the taxpayer disposes of the new cryptocurrency, the market value would be available and, as such, the proceeds at the time of disposal would be reduced by the nil cost price.

When the taxpayer's new cryptocurrency is a capital asset, there will be no inclusion to the taxpayer's taxable income on receipt. The tax consequences that are applicable to the capital gain or loss from the disposal are dealt with in the Eighth Schedule. The considerations on the tax consequences of a disposal of a capital nature, for the new cryptocurrency, include the value of the base cost and the value of proceeds, used to calculate the related capital gain or loss. The Eighth Schedule, paragraph 20, stipulates that the base cost of the capital asset consists of the actual expenditure incurred in the acquisition of the disposed asset(s), including the allowable expenditure directly incurred in the acquisition and disposal of the asset (Income Tax Act, 1962). The new cryptocurrency is received by the taxpayer with no consideration paid. However, the taxpayer may incur expenditure for the negligible fees on either receipt or disposal.

Section 40C of the Act relates to the rights issue of shares that could be extended to incorporate cryptocurrency because they both are considered as financial instruments as per Section 1 of the Act. Section 40C stipulates that when a taxpayer acquires or accepts a rights issue of shares in a company the cost of acquisition should be deemed to have a nil value of actual expenditure incurred (Income Tax Act, 1962). This context is comparable to that of a new cryptocurrency received in a hard fork. In a similar manner to that of the rights issue of shares, the new cryptocurrency is received as a result of owning the original cryptocurrency at the time of the hard fork. Despite the cryptocurrency not being the only financial instrument received for no consideration, it is has a high likelihood than others. This study, therefore, recommends that Section 40C of the Act be extended to include cryptocurrency, given the similarities identified above. In this study, the base cost of the cryptocurrency obtained in a hard fork will be based on a nil value. The proceeds of the disposal of the new cryptocurrency would be either at the selling price received or accrued when exchanged for fiat currency, or market value at the time of disposal, for other types of disposals as per Table 4 above.

The approach proposed in this study is in line with the consideration that the tax paid is on the benefit received, which would be the full value of the proceeds. The income tax consequence

proposed above is in line with that of the HMRC and ATO. Drawing from the ATO treatment, allocating the base cost and cost of trading stock at zero, would be appropriate for the determination of the capital gains and gross income. The above proposed approach is derived from the current Income Tax consequences as contained in the Act and available case law which are in line with that of the HMRC and ATO when considering the treatment of the new cryptocurrency received in a hard fork by other jurisdictions. The IRS does not apply the consideration of capital and revenue, which is an intrinsic part of the SA Income Tax. It is important to draw reference to the jurisdictions that have been used in the benchmarking process, together with their experience, in an effort to utilise the currently available SA legislation and case law. For the purposes of the study, the treatment proposed above was the basis used for the formulation of question 4 in the quiz section 2.5 of the experimental survey questionnaire.

4.2.2.2 Receiving an airdrop of cryptocurrency

An airdrop of cryptocurrency is not specifically addressed by the SARS media guidelines to taxpayers. An airdrop occurs when a cryptocurrency user receives an allocation of cryptocurrency in their digital wallet or e-wallet as part of a marketing or advertising campaign. The hard fork discussed above also results in an airdrop because the taxpayer receives new cryptocurrency automatically due to the user holding the original cryptocurrency, which had a hard fork (HMRC, 2019c). The IRS, HMRC and ATO guidelines which were used to benchmark the SARS media guidelines, have addressed the income tax consequences of the airdrops in their jurisdictions. The IRS, like SARS, has not specifically addressed airdrops related to marketing or advertising campaigns, but only those related to hard forks.

The ATO guidelines provide that airdrops of cryptocurrency received in a taxpayer's digital wallet or e-wallet, as part of a marketing or advertising campaign, are treated as ordinary income at the fair value of the cryptocurrency at the time of receipt. The ATO treatment distinguishes the airdrop treatment as being different from when the taxpayer receives new cryptocurrency from the product of a hard fork, which is treated as either a capital gain for individuals or trading stock for businesses, once the new cryptocurrency is disposed of. The timing of the income tax consequences is also important to note because the airdrop is taxed on receipt and the hard fork on disposal. Either the capital gains tax for individuals or trading stock rules for businesses apply to the disposal of the airdropped cryptocurrency (ATO, 2020).

The HMRC issued guidelines specifically relating to the income tax consequences of marketing or advertising campaign airdrops. The HMRC treats airdrops in terms of the taxpayer's manner of receiving the airdrops of cryptocurrency. If the taxpayer had received the airdrop of cryptocurrency in their personal capacity, without any expectations to perform or in exchange

for services or other conditions, the airdrop will not be taxable at the time of receipt. In the case when there is an expectation or in exchange for services or other conditions from the taxpayer, the airdrop will be included in the taxpayer's other income or receipts of trade. On disposal, the proceeds from the disposal of the airdropped cryptocurrency will be considered for capital gains tax, however, if the airdropped cryptocurrency was included in the taxpayer's other income or receipts of trade, the income tax rules would take preference over capital gains (HMRC, 2019c).

In the guidelines issued by the HMRC and ATO, the treatment is different for the date of receipt, with the ATO taking the route that eliminates the burden of proof of the intentions of the recipient and treats all receipts as revenue in nature. The subsequent disposal of the airdropped cryptocurrency is treated similarly to the HMRC, namely as capital gains tax for individuals or trading stock for businesses or traders, thus leaving the burden of proof to the taxpayers to prove that they are not carrying on a business.

In deriving a recommended income tax consequence for the airdrop for SA taxpayers, consideration is given to the guidelines proposed for hard forks, because the taxpayer in both cases, involuntarily receives new cryptocurrency at no personal cost. The airdrop of cryptocurrency, as with the hard fork, results in an increase to a taxpayer’s wealth. The income tax consequences of the airdrop should be similar to the hard fork when a new cryptocurrency is received because the principle is the same. Both the airdrop of cryptocurrency and the hard fork, would be capital or revenue in nature, depending on the taxpayer’s income activities. In considering the applicable SA Income Tax legislation, the intention of the taxpayer plays a vital role in the decision of whether the receipt or accrual is of a capital nature or income. The taxpayer would have to prove the intention for receiving the new cryptocurrency is of a capital nature. The cryptocurrency activities of the taxpayer will form the basis of the considerations of the intention with the new cryptocurrency. There are three types of taxpayers, who transact in cryptocurrency, the miner, trader and investor, as identified in Section 4.2.2.1 above. The SARS media guidelines indicated that when a taxpayer acquires cryptocurrency through mining activities it would give rise to an immediate accrual or receipt of the new cryptocurrency, which will be held as trading stock until its disposal or exchange for fiat currency. The airdropped cryptocurrency would be treated as trading stock for the miner. In the case of a taxpayer other than a miner, the default basis would be their cryptocurrency activities, prior to receiving the new cryptocurrency, thus, proving whether the receipt is of a capital nature. If the taxpayer has held the cryptocurrency for speculative reasons, the tax consequence that will occur on receipt of the new cryptocurrency would be revenue in nature, as would be the case for the miner. On disposal of the new cryptocurrency, a taxpayer would include the proceeds and profit in normal income if the taxpayer engages in trading or mining activities.

A taxpayer may acquire cryptocurrency as a long-term investment. However, the taxpayer will still be required to prove this fact to the Commissioner, due to the unique characteristics of cryptocurrency. The taxpayer may thus be liable for capital gains tax when the new cryptocurrency is held for investment purposes, while the income is treated as revenue income if the taxpayer engages in trading or mining activities, on the disposal of the cryptocurrency. If the taxpayer holds the new cryptocurrency for investment purposes the proceeds may thus be liable for capital gains tax on the disposal of the cryptocurrency. The Eighth Schedule of the Act addresses the disposal of capital assets and the related calculation of capital gains tax.

The timing of the taxation of the airdrop's new cryptocurrency would be the same as that of the hard fork's new cryptocurrency. New cryptocurrency of a revenue nature would be taxable at the earlier cost of the accrual or receipt to the taxpayer, as per the gross income definition in Section 1 of the Act. On receipt of the new cryptocurrency, the taxpayer would add its value to their trading stock and the subsequent increase in value would be taxable on disposal as per the trading stock rules of Section 22 of the Act (Income Tax Act, 1962). In contrast, the taxpayer whose new cryptocurrency would be capital in nature will have no inclusion in taxable income upon its receipt. The tax consequences are applicable on the capital gain or loss from the disposal (through either sale, exchange or donation), at the time of the disposal of the new cryptocurrency, per the Eighth Schedule, paragraph 13 of the Act.

The next action would be the determination of the value which will be used to calculate the base cost of capital gains or cost of trading stock, on disposal of the new cryptocurrency. Even though there are some similarities between the airdropped and the hard fork cryptocurrency, the market value of the cryptocurrency may be available on the receipt. Apart from this consideration, the determination of value would follow the same principles as applied to the hard fork.

As mentioned above, traders and miners would include the airdropped cryptocurrency immediately in their trading stock and hold it until disposal. The value of the airdropped cryptocurrency would be included in the taxpayer's trading stock in terms of Section 22 (4) of the Act that applies to trading stock acquired for no or unmeasurable consideration. Section 22 (4) also requires that the cost to be included be equal to the current market price on receipt, which would be applicable for both, cryptocurrency with an available market price and new cryptocurrency with no available reliable market value (Income Tax Act, 1962). Given the low likelihood of receiving cryptocurrency which is currently in circulation, establishing an objective market value on receipt of the new cryptocurrency would be difficult. In such instances, it may not be possible to recognise income on receipt. This situation is in line with the proposal made for the hard fork, given the similarities in the manner in which the cryptocurrency was received.

When the taxpayer disposes of the new cryptocurrency, the market value would be available and, as such, the proceeds at the time of disposal would be reduced by the nil cost price.

The Eighth Schedule of the Act deals with the tax consequences applicable to the capital gain or loss resulting from the disposal of airdropped cryptocurrency. The considerations on the tax consequences of a disposal of airdropped cryptocurrency of a capital nature, include the value of the base cost and proceeds, used to calculate the related capital gain or loss. The Eighth Schedule, paragraph 20 stipulates that the base cost of the capital asset consists of the actual expenditure incurred in the acquisition of the disposed asset(s), including the allowable expenditure directly incurred in the acquisition and disposal of the asset (Income Tax Act, 1962). Although the airdropped cryptocurrency was received by the taxpayer with no consideration paid, the taxpayer may incur expenditure for the negligible fees on either receipt or disposal. In this study, the base cost used will be assumed to be a nil value. The proceeds on the disposal of the airdropped cryptocurrency will be either the selling price received or accrued, when exchanged for fiat currency, or market value at the time of disposal, for other types of disposals as per Table 4 above.

The approach proposed is in line with the consideration that the tax paid is on the benefit received, which would be the full value of the proceeds, similar to the income tax consequence of a hard fork. The proposed approach above has been derived from the current Income Tax consequences as contained in the Act and available case law, as well as consideration of the treatment of the airdropped cryptocurrency by other jurisdictions. For the purposes of the study, the treatment proposed above was the basis used for question 4 in the quiz section2.5 of the experimental survey questionnaire for both blockchain fork and airdrop due to their similarities mentioned above.

4.2.2.3 Donating cryptocurrency to another person, including to charity

The IRS, HMRC and ATO have all issued guidelines on the income tax consequences of donating cryptocurrency. Notwithstanding the fact that donations tax is included in the Act, the focus in this study would be the income tax consequences related to the revenue income or capital gains tax consequences of these cryptocurrency transactions.

In the IRS Guidelines, a donation of cryptocurrency to a charitable organisation will not be considered for ordinary income, or capital gain or loss (IRS, 2019a). In any other instance of a donation, the normal rules of disposal of cryptocurrency would apply. The value of the donation for the calculation of the charitable contributions' deduction is based on the period for which the cryptocurrency was held. For cryptocurrency held for longer than a year, the value is the market value of the cryptocurrency on the donation date. When the cryptocurrency is held for

less than a year, it would be the lesser of either the market value of the cryptocurrency on the donation date or the cost of the cryptocurrency. Guidance on the value has not been specifically provided for non-charitable donations.

The HMRC Guidelines on the treatment of the income tax consequences of a donation of cryptocurrency is consistent to some extent with that of IRS. Donations to charity do not attract capital gains for individuals or corporation tax for businesses unless the donations are 'tainted' (when the taxpayer donors enter into an arrangement to obtain financial advantage from a charity after making a donation (HMRC, 2020)) or in an endeavour to realise a gain from the disposal. The HMRC guidelines further provide that a disposal of cryptocurrency in the form of a donation to another person other than a spouse or civil partner will attract capital gains tax. For a company, the donation of cryptocurrency to another person or entity, other than a member of the same group of companies, will attract corporation tax (HMRC, 2019a). The value of the donation for the corporation tax calculation will be the value of the cryptocurrency at the time of donation.

In the ATO Guidelines, the donation of cryptocurrency is treated as a disposal of cryptocurrency and, as such, will attract capital gains tax for individuals who hold the cryptocurrency for investment purposes while trading stock rules will apply for businesses. The value of the donation would be the market value of the cryptocurrency in the calculation of the capital gains or application of trading stock rules (ATO, 2020).

It is noted from the IRS, HMRC and ATO guidelines that the treatment stipulated is similar, namely that gains or losses from charitable donations are exempt from normal income tax and capital gains. There is also consensus in respect of donations to other individuals or organisations, other than spouses, companies within the same group or charitable organisations. These gains or losses will attract capital gains tax for individuals and normal income tax for businesses.

The common rule that applies to all South African taxpayers is that donations to Public Benefit Organisations (PBO) attract a deduction for the taxpayer, under Section 18A of the Act. In Section 22 (8) (C) of the Act, the cryptocurrency donation to a PBO by a miner or trader would be deemed to be recouped at an amount equivalent to the value recognised by the taxpayer at acquisition. The investor would disregard the capital gains or losses for the donations made to a PBO, as per paragraph 62 of the Eighth Schedule of the Act (Income Tax Act, 1962). For any other donation, being a deemed disposal at market value, the normal trading stock rules or capital gains tax consequences will apply.

There are three types of taxpayers, namely, the cryptocurrency miner, trader and investor, as previously identified. The miner and trader taxpayers would include cryptocurrency as part of their trading stock, whilst investor taxpayers will include the cryptocurrency in their capital assets. In terms of the miner and trader taxpayers, Section 22 (8) (b), when read with 22 (8) (B) of the Act, stipulates that the donation of cryptocurrency will be deemed as recouped at an amount equal to the market value of the cryptocurrency at the time of donation (Income Tax Act, 1962). The investor taxpayer's capital gains or losses on the donation to any person, other than a PBO and between spouses, will be treated according to the prescripts of paragraph 38 of the Eighth Schedule of the Act. This paragraph states that the donation by the investor taxpayer will constitute a disposal with a value equivalent to the market value of the cryptocurrency on the date of donation (Income Tax Act, 1962).

Drawing from the PBO donations, trading stock rules and capital gains tax provisions mentioned above, the value used in the calculation of the proceeds to determine the related capital gains or losses on donation or the recoupment amount of the trading stock donation, will be the market value of the cryptocurrency at the time of donation. In considering the above-mentioned income tax consequences, it is clear that there is sufficient available income tax legislation to address the income tax consequences arising for taxpayers who have donated their cryptocurrency; however, the SARS media guidelines on cryptocurrency do not address such transactions. The income tax consequences discussed above are broadly consistent with that of the HMRC, IRS and ATO Guidelines.

For the purposes of this study, the treatment discussed above for the donation of the cryptocurrency was used in question 5 in the quiz section 2.5 of the experimental survey questionnaire.

4.2.2.4 Making salary payments in cryptocurrency

The SARS media guidelines addressed the receipt of cryptocurrency in lieu of salary or services rendered. However, the guidelines of the income tax consequences for the taxpayer making the payment is missing. On the other hand, the IRS, HMRC and ATO guidelines addressed the payment of salaries in cryptocurrency for services rendered within their respective jurisdictions.

According to the US guidelines, the gains and losses from the payment of salaries by a taxpayer in cryptocurrency are treated as capital disposals if the cryptocurrency is held as a capital asset and as ordinary income if held as the trading stock of the taxpayer (IRS, 2019a). The gain or loss recognised is the difference between the fair market value of the remuneration for services rendered and the cost of the cryptocurrency exchanged.

The HMRC guidelines on the treatment of the income tax consequences of the payment of salaries in cryptocurrency is consistent with that of the IRS guidelines. The treatment of the payment of salaries matches that of the exchange of cryptocurrency in the payment of goods and services. For individuals, the gains or losses from the exchange of cryptocurrency are liable for capital gains tax, except when an individual is considered a trader and, as such, normal income tax rules apply. The applicable normal income tax rules would be similar to those applicable to businesses. For businesses, the gains and losses from this type of exchange attract corporation tax, except when the cryptocurrency is held for investment, which requires a partnership (if individuals) and sole trader to treat it as a capital gain. The value used to calculate the proceeds would be the market value equivalent of the cryptocurrency at the time of exchange for the employee remuneration or services rendered (HMRC, 2019a, 2019b).

In the ATO guidelines, the exchange of cryptocurrency in payment of remuneration is treated as a disposal of the cryptocurrency and, as such, will attract capital gains tax for individuals who hold the cryptocurrency for investment purposes, while trading stock rules apply for businesses. The treatment of the payment of salaries in cryptocurrency is treated as an exchange of cryptocurrency for goods or services. The value of such an exchange will be the market value of the cryptocurrency in the calculation of the capital gains or application of trading stock rules (ATO, 2020).

Drawing from the IRS, HMRC and ATO guidelines, the treatment in their relative jurisdictions is similar, in that gains or losses from the exchange of the cryptocurrency for salary payments of employees will attract capital gains tax when held for investment, and normal income tax for businesses. In deriving a recommended income tax consequence for the gains or losses from the exchange of cryptocurrency in lieu of remuneration, as conducted in the other jurisdictions, such transactions would need to be treated consistently with those of the exchange of cryptocurrency for goods or services. As mentioned above, SARS media guidelines have addressed the treatment of the exchange of cryptocurrency for goods or services. In deriving the income tax consequences of such transactions, consideration of the SARS media guidelines on the exchange of cryptocurrency for goods or services was made. The SARS media guidelines indicate that taxpayers can exchange cryptocurrency for goods or services in line with a normal barter transaction. A barter transaction occurs when the participants in the transaction agree on an equal exchange of goods or services, based on relative values of the goods and services to be exchanged (Basson, 2020). The exchange of cryptocurrency in payment for services rendered or remuneration requires both parties (i.e. employer and employee) to agree on the value of the cryptocurrency to be paid as remuneration. The disposal of the cryptocurrency in payment of the remuneration will attract tax consequences

for the employer, at the value of the disposal. As mentioned in Section 2.1.3 of the Literature Review, the most commonly traded cryptocurrency is Bitcoin and the value is publicly available. This knowledge will make it easier for the employer and the employees to agree on the appropriate number of cryptocurrency or Bitcoin exchanged in lieu of remuneration for the services rendered.

The income tax consequences of these transactions will be the disposal of the cryptocurrency, resulting in gains or losses between the cost price and the barter transaction value. The taxpayer's cryptocurrency activities will determine whether this transaction will be treated as trading stock in terms of Section 22 (8) (b) of the Act or as a capital gain as per paragraph 35 (1) of the Eighth Schedule of the Act. Section 22 (8) (b), when read with 22 (8) (B) of the Act, stipulates that the disposal of trading stock, outside of the normal course of trade, will be deemed as recouped at an amount equal to the market value of the cryptocurrency at the time of disposal (Income Tax Act, 1962). In terms of a taxpayer who is involved in activities of trading or mining of cryptocurrency, the exchange of cryptocurrency that has been included in their trading stock in payment of an employee's remuneration amounts to a disposal of trading stock outside of the ordinary course of trade. In calculating the market value of the cryptocurrency, the barter transaction value will be used to calculate the recoupment amount in line with Section 22(8) (b) of the Act and SARS media guidelines. The cost price of the trading stock will be the amount which was added as per Section 22 (1) (a) of the Act.

The investor taxpayer's capital gains or losses on the exchange of cryptocurrency for an employee's remuneration will be treated according to the prescripts of paragraph 35 (1) of the Eighth Schedule of the Act, because these transactions will be considered to be a normal disposal of the cryptocurrency (Income Tax Act, 1962). The proceeds from such disposal of cryptocurrency will be deemed equal to the amount which is treated as having been received by the investor taxpayer for that disposal, in line with the barter transaction rules. These rules stipulate that the transaction will be equal to the exchange rate of cryptocurrency and services rendered, based on relative values of the cryptocurrency and remuneration of services exchanged (Basson, 2020). In considering the barter transaction rules, the market value of the cryptocurrency exchanged will match that of the market value of the remuneration paid for services rendered, which will be the value of the proceeds from the disposal. The difference between this value and the cost at acquisition is the capital gain on disposal.

Drawing from the barter transaction rules, trading stock rules and capital gains tax provisions mentioned above, the value of the exchange of cryptocurrency in lieu of remuneration for services rendered will be the market value of the cryptocurrency at the time of exchange, which might be either capital or revenue in nature. In considering the above-mentioned income tax

consequences, it is clear that there is sufficient Income Tax Legislation available to address the taxpayers who have exchanged their cryptocurrency in payment of remuneration for the services rendered by employees; however, the SARS media guidelines do not address such transactions. The income tax consequences discussed above are broadly consistent with that of the HMRC, IRS and ATO Guidelines. For the purposes of the study, the treatment discussed above was used for question in the quiz section 2.5 of the experimental survey.

4.2.2.5 Initial coin offering, which is the sale of a new cryptocurrency to the market.

None of the jurisdictions considered in this study provided guidelines in respect of the income tax consequences of an initial coin offering (ICO), as identified in the Literature Review in Section 2.1.4 above. To recap, an ICO occurs when an entity initially introduces a cryptocurrency by selling it to the market, which can be compared to the initial listing of shares in a company. The cryptocurrency in an ICO can be issued in exchange for either fiat currency, or other types of cryptocurrency. ICOs currently occur within start-up companies that are attempting to raise funds (OECD, 2019).

Deriving recommended income tax consequences for the ICO is complex, considering the unique characteristics of cryptocurrency, coupled with the fact that there are no formal guidelines available from the benchmarked authorities. Cryptocurrency, unlike other financial instruments defined in Section 1 of the Act, does not provide the cryptocurrency holder with a residual right to the equity of the company or rights to dividends on purchases from the ICO. The issuer of the cryptocurrency in an ICO offers a cryptocurrency token that the holder hopes will be accepted in the future by someone other than the issuer of the token, thus the cryptocurrency purchaser of an ICO has no ownership interest in or future claim against the issuer. In some cases, however, the cryptocurrency token entitles the purchaser to claim future performance from the issuer (OECD, 2019). The cryptocurrency tokens sold can have varied uses, such as tokens for an exchange on the blockchain platform, a means of paying to access the network for application developers, paying for goods or services or even as an exchange currency to make use of the facilities or services of a certain platform. In essence, the ICO can be either utilised for cryptocurrency issued in a bid to raise capital for a start-up company with no future obligation to the cryptocurrency holder, or in a bid to raise capital and issue the tokens as an exchange currency to make use of the facilities or services of a certain platform. When considering these two instances, the income tax consequences will be calculated in terms of the gross income definition of Section 1 of the Act.

In terms of the gross income definition, the taxpayer should include the total amount received or accrued in favour of the taxpayer, in cash or otherwise, during the year of assessment excluding receipts or accruals of a capital nature (Income Tax Act, 1962). The participants in the ICO purchase the new cryptocurrency in fiat currency (cash) or in exchange for another cryptocurrency and, as such, the consideration accrues to or is received by the taxpayer, on the date of the ICO. In the case of the ICO being created to raise capital for the taxpayer with no future obligation to the cryptocurrency holder, the ICO meets the definition of the gross income, unless the taxpayer can prove otherwise. The other instance of an ICO will involve a bid to raise capital to set up a certain platform and issue the tokens as an exchange currency to make use of the facilities or services of the platform. There is a future performance obligation of the taxpayer to the holders of the cryptocurrency that will be settled through the use of the facilities or services of the planned platform in exchange for the cryptocurrency purchased. In the financial records of the taxpayer, this represents a liability and not income, because the amounts received will be recorded in advance, until such a time as they recognise the revenue through the future exchange of the cryptocurrency for the use of facilities and/or services. In terms of the gross income definition, however, the taxpayer meets the gross income definition to include the total amount received in favour of the taxpayer, in cash or otherwise.

In the second instance mentioned above, the taxpayer has a plan to utilise the capital raised through the ICO, to deliver a platform that will be utilised by the cryptocurrency holders. In the instance in which the ICO issuer plans to use the amounts received in advance directly for the building and setting up of the platform, consideration may be given to applying Section 24C of the Act. Section 24C stipulates that taxpayer may deduct from his/her taxable income in the year of assessment, an amount received which relates to expenditure to be incurred by the taxpayer in the performance of the taxpayer's obligations in terms of a contract, which does not exceed the amount received or accrued to in that year of assessment (Income Tax Act, 1962). Section 24C was previously designed for businesses operating in the construction industries, however, in the case of *Big G Restaurants (Pty) Ltd v Commissioner for the South African Revenue Service* 2020, ZACC 16, it was clarified that this section applies to any industry receiving large sums of money in advance, for the future performance of obligations. By applying Section 24C of the Act, the taxpayer may be able to claim a deduction of the future expenditure against the amounts received in advance. In such circumstances, the taxpayer may be able to defer the income tax consequences of amounts received via an ICO.

In line with the gross income definition outlined in the Act, the sum received via the ICO would be taxable at the amount of the earlier accrual or receipt. The taxpayer, thus, would include the amounts received from the ICO to their taxable income at the value of either the fiat

currency received, or in the case of cryptocurrency receipts, at the market value on the date of the exchange.

The example used in question 10 in the quiz section 2.5 of the experimental survey, refers to that of a company that issues cryptocurrency to the public which is redeemable as payment for the use of facilities and services offered by the company.

4.2.3 Conclusion of document analysis

Through the document analysis performed during this study, the SARS media guidelines were found not fully comprehensive because gaps were identified between these media guidelines and guidelines of the other countries' tax authorities that were considered. The SARS media guidelines did not address five of the eleven cryptocurrency transactions identified, as compared with those of the other tax authorities. Issues relating to various key cryptocurrency transactions prevalent with business users were not addressed, such as making salary payments in cryptocurrency, donations and the treatment of ICOs. Recommendations for guidance were thus developed, using the Act and relevant case law, as a basis for the questions included in the experimental survey.

The income tax consequences of the cryptocurrency transactions depicted in Table 4 above were used as the basis for the questions included in the experimental survey. The findings of the experimental survey questionnaire completed by the study participants are discussed in Section 4.3 below. The summary of these findings includes an analysis of the responses from the participants, including their ability to arrive at conclusions consistent with the income tax consequences relating to the five cryptocurrency transactions mentioned above.

4.3 FINDINGS FROM THE EXPERIMENTAL SURVEY QUESTIONNAIRE

Section 4.3 analyses the data collected from the participants' responses to the experimental survey questionnaire. The gaps identified in Section 4.2.2 above, comprised part of the questions tested in the survey, using the proposed treatment of the gaps established in that section as being the correct option among the alternatives presented. The experimental survey (see Appendix C), was distributed through a mailing list of approximately 1550 contacts and was accessible to study participants from 11 April until 31 May 2020. These participants were randomly assigned to one of two groups upon commencing the survey. One group was presented with the SARS media guidelines and encouraged to peruse the contents before completing the questionnaire, while the other group did not have access to the SARS media guidelines.

As explained in Section 3.4.2 above the results are compared between four groups of participants:

- Those presented with the SARS media guidelines and who had demonstrated tax literacy in the screening questions in the questionnaire (Experimental Group 1),
- Those presented with the SARS media guidelines and who had not demonstrated tax literacy in the screening questions (Experimental Group 2),
- Those not presented with the SARS media guidelines and who had demonstrated tax literacy in the screening questions (Control Group 1) and
- Those not presented with the SARS media guidelines and who had not demonstrated tax literacy in the screening questions (Control Group 2).

4.3.1 Demographic profile of the experimental survey participants

The survey was shared with participants, comprising mainly UCT APC Professional Programme candidates and PGDA students, through a mailing list. A total of 150 participants were involved in the study and were able to discontinue the survey at any point, as part of the ethical and voluntary participation conditions. Out of the 150 people who began the survey, 79 exercised their option to discontinue the survey, within which the range of survey completion was between 3 and 61%. The voluntary participation option, together with the participants' anonymity, limited the possible number of 'follow-up' actions encouraging participants to complete the survey. Table 5 below presents the number and percentage of completed surveys.

Table 5: Summary of overall participation

Status of Survey	Frequency	Percentage
Completed	71	47%
Partially completed	79	53%
Grand Total	**150**	**100%**

Out of the 79 participants, 15 merely accessed the survey, with a further 3 who, having accepted the ethical considerations, then discontinued the survey, thus providing no information for analysis. 44 of the 79 participants only completed the demographic questions, while a further 17 also attempted the screening questions, but did not complete them. The fact that the majority of these surveys were incomplete, left numerous gaps in the required information which thus distorted the data analysis of the completed surveys, because the majority of the provided data was demographical in nature. The poor response to the cryptocurrency questions prevented the system from providing a random allocation for the split of participants to be given/not given the SARS media guidelines. This omission is considered

a critical factor, thus resulting in the decision to reject the partially completed surveys. The data analysis from the results, excluding these particular questionnaires, is presented in the following sections. In the conclusion, consideration will be given to the implications of the limitations arising from the non-completion of surveys.

In the sections below, the 71 completed surveys will be analysed. Table 6 below presents the demographic profile of the participants, using information from the completed 71 surveys. Most of the participants were UCT APC Programme candidates who have completed their university studies and the first professional SAICA exam and, consequently, selected either Honours (PGDA/CTA), APC Candidate or Professional Qualification as their highest qualification. The 'Professional Qualification' choice in some instances may have been selected as the highest qualification for some of the APC candidates because they may have already obtained other professional designations related to their areas of specialisation, such as Certified Internal Auditor (CIA) or Certified Information Systems Auditor (CISA). Most of the participants who had completed their full-time studies were in the Corporate Governance area of specialisation, which includes external and internal audit, risk management and other assurance functions, followed by those in Financial Reporting. A significant percentage − 70% (n = 50/71) of the participants – are taxpayers, which is beneficial because they may be assumed to have some functional tax knowledge in addition to their academic qualifications. However, only two participants are cryptocurrency users.

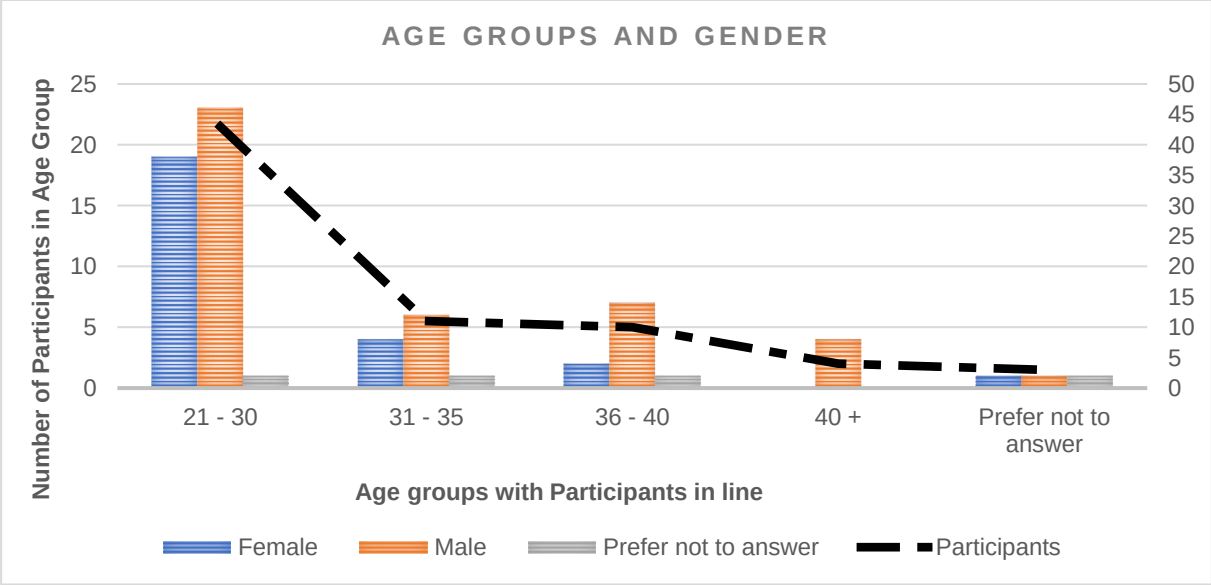
Table 6: Demographics of participants who completed the survey

Demographic Description	Frequency	Percentage
What is your highest qualification?		
B-Degree/BTech	19	27%
Honours (PGDA/CTA)	14	20%
APC Candidate	19	27%
Professional Qualification	12	17%
PhD	1	1%
Total	**71**	**100%**
What is your area of specialisation?		
Corporate Governance	13	18%
Financial Reporting	10	14%
Managerial Accounting and Finance	7	10%
Other non-commerce industries	2	3%
Students	38	54%
Taxation	1	1%
Total	**71**	**99%**
Have you ever submitted a tax return?		
No	21	30%

Demographic Description	Frequency	Percentage
Yes	50	70%
Total	**71**	**100%**
What is your Age Group?		
21 – 30	43	61%
31 – 35	11	15%
36 – 40	10	14%
40 +	4	6%
Prefer not to answer	3	4%
Total	**71**	**100%**
What is your Gender?		
Female	26	37%
Male	41	58%
Prefer not to answer	4	6%
Total	**71**	**100%**
Are you currently transacting in Cryptocurrency?		
No	69	97%
Yes	2	3%
Total	**71**	**100%**

Graph 1 below depicts the age and gender distribution of the participants. 61% of the participants who completed the assignment were in the 21 – 30 age group, with males comprising the highest number of participants. The study performed by Beckbessinger and Dingle (2018) found that most cryptocurrency enthusiasts were relatively young, which is the nature of the highest number of participants in this study. Of the four participants who preferred not to disclose their gender, three also chose not to disclose their age.

Graph 1: Age and Gender disparities



4.3.2 Analysis of responses and participants of completed surveys

Table 7 below presents the percentage split of the completed results between the participants randomly allocated to be part of the group without access to SARS media guidelines (Control Group) and the group provided with SARS media guidelines (Experimental Group), which was 42 and 29 participants respectively. Due to the number of participants who do not complete the full questionnaire, there is a disparity in the numbers of the split between the control group and the experimental group.

Table 7: Summary of completed surveys and allocation participants into groups

Description of Groupings	Frequency	Percentage
Experimental Group	29	41%
Control Group	42	59%
Total	**71**	**100%**

The test issued to participants had a section containing screening questions and also a section to test participants' understanding of the income tax consequences of cryptocurrency transactions (the cryptocurrency questions) as identified in Table 4 above. The screening questions related to general tax concepts in order to gain an understanding of each participant's level of tax literacy. The participants responded to questions on the following topics, ranked for the level of difficulty and coded for analysis:

Table 8: General concepts tested in screening questions with coding for analysis

Analysis Coding	General tax Concept	Level of Difficulty
General Q1	Receipts of a capital or revenue nature	Basic
General Q2	Capital gains tax	Basic
General Q3	Foreign exchange translation	Advanced
General Q4	Assessed losses	Advanced

The analysis of the questionnaire results has been split based on the results of the screening questions. The analysis of the responses to the four screening questions within the Control and Experimental Groups is presented in Table 9 below. The participants obtained a mean of 1.592 with a standard deviation of 1.090. The Control Group of 42 participants obtained a mean of 1.548 with a standard deviation of 1.087 on the four tax literacy screening questions. Of the 42 participants, 21 obtained a score of 50% or above, which translates to 50% of the Control Group being considered "tax literate" for the purposes of this study. Those who were considered "tax literate" were assigned to Control Group 1, and the balance to Control Group 2, as discussed in Section 4.3.1 above.

The Experimental Group of 29 participants obtained a mean of 1.655 with a standard deviation of 1.111 on the four tax literacy screening questions. Of the 29 participants, 15 participants obtained a score of 50% or above, which translates to 52 % of the Experimental Group being considered “tax literate” for the purposes of this study. These 15 participants were assigned to Experimental Group 1, and the balance to Experimental Group 2. Those participants considered tax literate across both the Control and Experimental Groups are thus included in Group 1, and the balance in Group 2.

Table 9: Summary of performance by participants in the screening questions

Description of Groupings	Frequency	Group 1	Group 2	Percentage	Mean	Standard Deviation
Control Group	42	21	21	59%	1.548	1.087
Experimental Group	29	15	14	41%	1.655	1.111
Total	**71**	**36**	**35**	**100%**	**1.592**	**1.090**

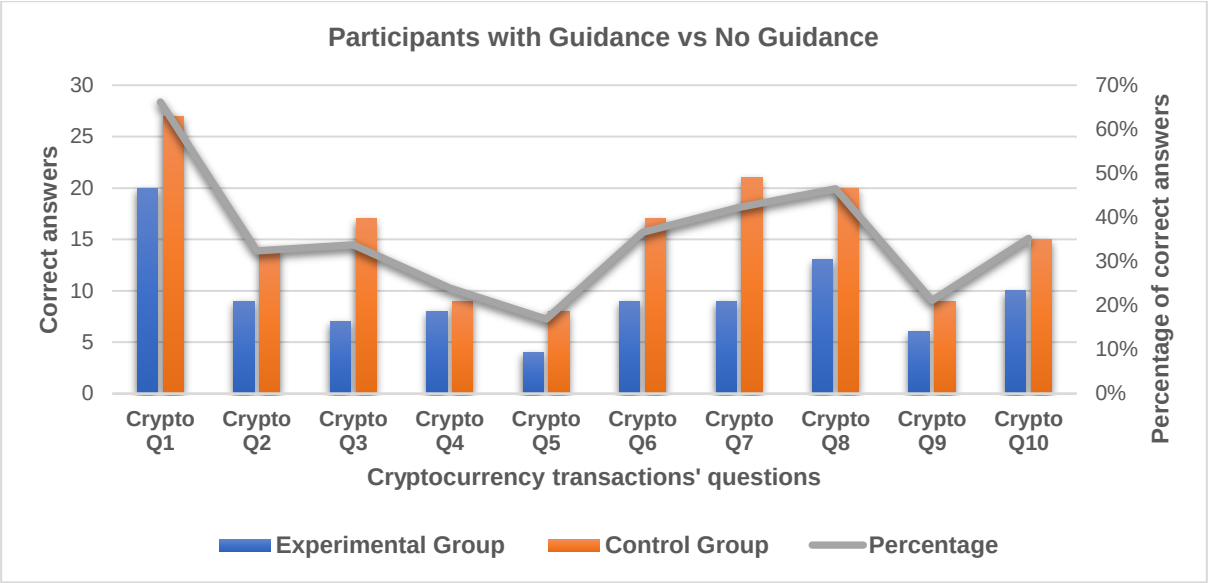
The analysis of the questionnaire results from the participants’ performance when answering the cryptocurrency questions is presented in Table 10 below, as per questions in Appendix C. The participants’ responses have been divided into two sections, the Control and Experimental Groups, and according to a performance indicator of 50% and above (Group 1) and below 50% (Group 2), as per Table 9 above. The participants’ responses to the cryptocurrency questions show that most of the participants provided the correct answer to the first question, while the least number of participants answered question 5 correctly. 37 of the 42 participants in the Control Group obtained a score of five or fewer correct answers, which translates to 77% of this group. 24 of the 29 participants in the Experimental Group obtained a score of five or fewer correct answers, which translates to 83% of this group. The subsections that follow contain different types of comparisons, namely between the performance of the participants in the Control and Experimental groups (Section 4.3.3), between participants who are considered “tax literate” and those who are not (Section 4.3.4), and between the responses of participants with access to the SARS media guidelines and those with no access to them (Section 4.3.5).

Table 10: Cryptocurrency questions with coding for analysis

Analysis Coding	Cryptocurrency questions	Control group			Experimental group			% Correct: Group 1	% Correct: Group 2	% Correct: all groups
		Correct: Control Group 1	Correct: Control Group 2	% Correct: Control Group	Correct: Experimental Group 1	Correct: Experimental Group 2	% Correct: Experimental Group			
Crypto Q1	Trading in cryptocurrency for fiat currency, or vice versa;	12	15	64%	11	9	69%	64%	69%	66%
Crypto Q2	Trading in cryptocurrency for another type, or vice versa;	8	6	33%	5	4	31%	36%	29%	32%
Crypto Q3	Obtaining cryptocurrency through rewards from mining processes;	10	7	40%	5	2	24%	42%	26%	34%
Crypto Q4	**Blockchain hard fork and airdrop of cryptocurrency;**	**4**	**5**	**21%**	**5**	**3**	**28%**	**25%**	**23%**	**24%**
Crypto Q5	**Donating cryptocurrency to another person, including to charity;**	**6**	**2**	**19%**	**3**	**1**	**14%**	**25%**	**9%**	**17%**
Crypto Q6	Making payments in cryptocurrency;	10	7	40%	7	2	31%	47%	26%	37%
Crypto Q7	Receiving cryptocurrency in exchange for products or services;	9	12	50%	7	2	31%	44%	40%	42%
Crypto Q8	Receiving cryptocurrency as a salary payment for employment purposes;	11	9	48%	10	3	45%	58%	34%	46%
Crypto Q9	**Making salary payments in cryptocurrency; and**	**4**	**5**	**21%**	**5**	**1**	**21%**	**25%**	**17%**	**21%**
Crypto Q10	**Initial coin offerings.**	**10**	**5**	**36%**	**7**	**3**	**34%**	**47%**	**23%**	**35%**

4.3.3 *Analysis of experimental versus control groups' performance in the cryptocurrency questions.*

Graph 2: Participants' performance on cryptocurrency transactions concepts



Graph 2 is a graphical depiction of the performance of the participants in the Experimental and Control groups when answering the cryptocurrency questions. The participants in both groups did particularly well in the first question. The Control Group's percentage of correct answers outperformed the Experimental Group in all the cryptocurrency questions, with the biggest gap in performance i.e. 19%, being observed in question 7. Question 5 proved the greatest challenge for the participants in both groups, and related to donating cryptocurrency. The participants in both groups did not perform well in the cryptocurrency questions 4, 5, 9 and 10, the subject matter of which had been excluded from the SARS media guidelines, as further analysed in Section 4.3.3.2 below. In the performance of the two groups (Control and Experimental), it should be noted that the Control Group has the advantage of having more participants, thus the distribution of these groups should be considered when analysing results. Levene's test of equality was utilised to ascertain the equality in the variance between the Experimental and Control groups in the cryptocurrency score.

Table 11: Summary of cryptocurrency transactions statistical performance

Description of Groupings	Observation	Mean	Standard Error	Standard Deviation	95% Conf.	Interval
Control Group	42	3.738	0.268	1.740	3.196	4.280
Experimental Group	29	3.276	0.374	2.016	2.509	4.043
Total	**71**	**3.549**	**0.220**	**1.858**	**3.110**	**3.989**
Diff		**0.462**	**0.448**		**-0.432**	**1.357**

Mean (diff) = mean (Control Group – Experimental Group)		***t = 1.031***
H_0: mean (diff) = 0		***degrees of freedom = 69***
H_a: mean (diff) < 0	***H_a: mean (diff)! = 0***	***H_a: mean (diff) > 0***
Pr (T < t) = 0.847	***Pr (|T| ≥ |t|) = 0.306***	***Pr (T > t) = 0.153***

Table 11 above, presents the statistical performance of the Control and Experimental Groups, which includes the mean and standard deviation of the participants. Levene's test had a p-value of p = 0.234, which is greater than the threshold of P>0.05 (F(1, 69) = 1.442). Thus, there is no significant difference in the variance of these two groups' performance in the cryptocurrency score. The assumption of equal variances is not seriously violated. An independent samples t-test, with a threshold of P>0.05, was performed to compare the means of the cryptocurrency score for the Experimental and Control groups. The results of the t-test showed that the mean cryptocurrency score does not differ significantly between the two groups (t(69) = 1.031, p = 0.306, mean difference = 0.462). The results of the t-test support the conclusion that the provision of SARS media guidelines did not have a statistically significant influence on the performance of study participants.

Table 12 below depicts the results of further analysis of the ability of the participants to determine the income tax consequences of cryptocurrency transactions. The participants that achieved a score of 50% and above (that is, answering five or more questions out of the ten correctly) were considered to "have an understanding" of the income tax consequences of cryptocurrency transactions and those who obtained less than 50%, were considered to "lack understanding" of the income tax consequences. Despite being given the SARS media guidelines, only eight of the 29 participants in the Experimental Group (27.59%) showed an understanding of the income tax consequences of cryptocurrency transactions. 11 of the 42 participants in the Control Group (26.19%) showed understanding at the same level without having access to guidance.

Table 12: Chi-square of SARS media guidance versus cryptocurrency transactions understanding

Description of Groupings	**Description**	**Cryptocurrency Transactions**		**Total**
		Have an understanding	**Lack an understanding**	
Control Group	Number of participants	11	31	**42**
	Expected frequency	11.2	30.8	**42.0**
	Percentage of frequency	26.19	73.81	**100.00**
	Column percentage	57.89	59.62	**59.15**
Experimental Group	Number of participants	8	21	**29**
	Expected frequency	7.8	21.2	**29.0**
	Percentage of frequency	27.59	72.41	**100.00**
	Column percentage	42.11	40.38	**40.85**

Description of Groupings	Description	Cryptocurrency Transactions		Total
		Have an understanding	Lack an understanding	
Total	Number of participants	19	52	**71**
	Expected frequency	19.0	52.0	**71.0**
	Percentage of frequency	26.76	73.24	**100.00**
	Column percentage	100.00	100.00	**100.00**

Pearson χ^2 (1) = 0.017 p = 0.896

The Chi-square test of association was used to answer the question of whether the SARS media guidelines assist taxpayers to determine the income tax consequences of cryptocurrency transactions, as shown in Table 12 above. The p-value associated with the Chi-square test statistic was p=0.896, which is greater than p>0.05, meaning that participants' ability to determine the income tax consequences of cryptocurrency transactions was independent of the provision of SARS media guidelines. 26.19% of the Control Group and 27.59% of the Experimental Group were considered to have an understanding of cryptocurrency. The Chi-square p-score indicates that there is not sufficient evidence to suggest an association between the provision of SARS media guidelines and the participants' performance on the cryptocurrency questions.

Thus, it is observed that the results of the Experimental Group were not statistically significantly different from those of the Control Group and the provision of SARS media guidelines did not significantly influence the participants' performance. Subsections 4.3.3.1 and 4.3.3.2 further explores the performance of the participants in both groups when answering the cryptocurrency questions, addressed and not addressed by SARS media guidelines respectively.

4.3.3.1 Analysis of the performance of participants in the cryptocurrency transactions addressed by the SARS media guidelines

The section below explores the Experimental and Control groups' performance in the cryptocurrency questions that were addressed by the SARS media guidelines (questions 1, 2, 3, 6, 7 and 8). Both groups performed well in these six questions, with the most notable performance for both groups being for question 1. Question 2 posed the greatest challenge for both groups. The participants' percentage of correct answers in the Control Group outperformed the participants in the Experimental Group in all these questions. The Control Group's percentage of correct answers had the greatest outperformance percentage gap in questions 3 and 7, at 16% and 19% respectively.

Table 13: Summary of the statistical performance of Control and Experimental groups for cryptocurrency transactions addressed by SARS media guidelines

Description of Groupings	Observation	Mean	Standard Error	Standard Deviation	95% Conf.	Interval
Control Group	42	2.762	0.236	1.527	2.286	3.238
Experimental Group	29	2.310	0.302	1.628	1.691	2.930
Total	**71**	**2.577**	**0.187**	**1.574**	**2.205**	**2.950**
Diff		**0.452**	**0.379**		**-0.304**	**1.207**

Mean (diff) = mean (Control Group – Experimental Group) ***t = 1.192***

H_0: mean (diff) = 0 ***degrees of freedom = 69***

H_a: mean (diff) < 0 ***H_a: mean (diff)! = 0*** ***H_a: mean (diff) > 0***

Pr(T < t) = 0.881 ***Pr(\|T\| ≥ \|t\|) = 0.237*** ***Pr(T > t) = 0.119***

Table 13 above presents the statistical performance of the Control and Experimental groups in the questions addressed by the SARS media guidelines, which includes the mean, standard deviation of the participants. Levene's test had a p-value of p=0.387, which is greater than the threshold of P>0.05 (F(1,69) = 0.759), thus there is no statistically significant difference in the variance of the two groups' performance in the cryptocurrency score addressed by the SARS media guidelines. The results of the t-test, with a threshold of P>0.05, support the conclusion that the provision of SARS media guidelines did not significantly influence the performance of participants in these six questions, despite all the questions being addressed by them − (t(69) = 1.192, p = 0.237, mean difference = 0.452).

4.3.3.2 Analysis of the performance of participants in the cryptocurrency transactions excluded from the SARS media guidelines.

The section below explores the Control and Experimental groups' performance in the cryptocurrency questions that were not addressed by the SARS media guidelines (questions 4, 5, 9 and 10). The participants in the Control Group outperformed the participants in the Experimental Group in all four of these cryptocurrency questions. The Control Group performed best in question 10, which is also the question in which the greatest outperformance percentage gap of correct answers by the Control Group is observed within these four questions. The question that posed the greatest challenge for all the participants was question 5, in which the Experimental Group's performance was the worst of either group in any question.

Table 14: Summary of the statistical performance of Control and Experimental Groups for cryptocurrency transactions not addressed by SARS media guidelines

Description of Groupings	Observation	Mean	Standard Error	Standard Deviation	95% Conf.	Interval
Control Group	42	0.976	0.130	0.841	0.714	1.238164
Experimental Group	29	0.966	0.161	0.865	0.636	1.295
Total	**71**	**0.972**	**0.100**	**0.845**	**0.772**	**1.172**
Diff		**0.011**	**0.205**		**-0. 399**	**0.420**

Mean (diff) = mean (Control Group – Experimental Group) ***t = 0.052***

H_0: mean (diff) = 0 ***degrees of freedom = 69***

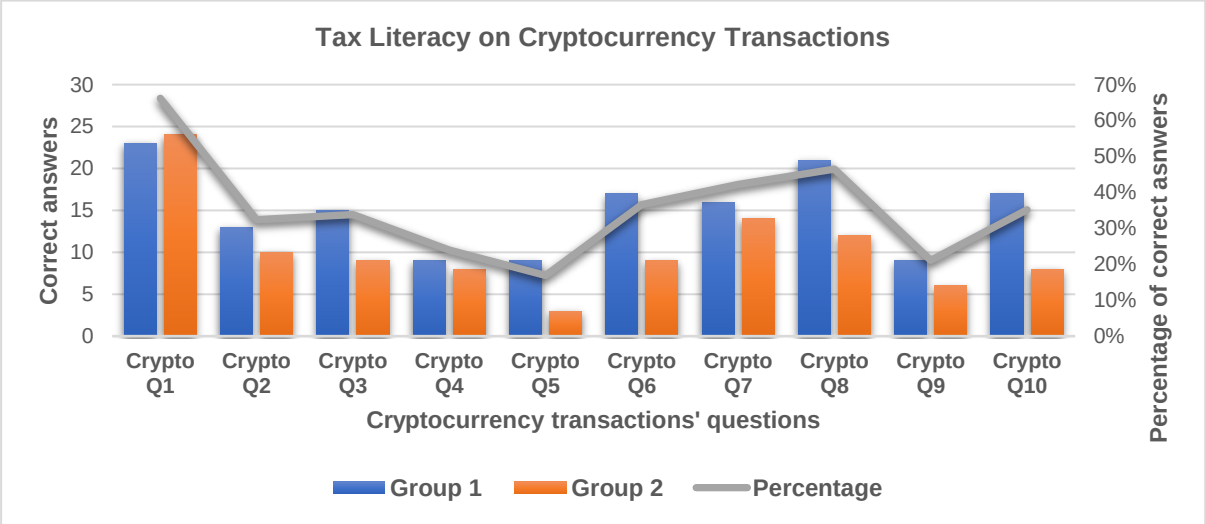
H_a: mean (diff) < 0 ***H_a: mean (diff)! = 0*** ***H_a: mean (diff) > 0***

Pr(T < t) = 0.521 ***Pr(|T| ≥ |t|) = 0.959*** ***Pr(T > t) = 0.4794***

Table 14 includes the mean, standard deviation of the participants. The Levene's test had a p-value of p=0.705, which is greater than the threshold of P>0.05 (F(1, 69) = 0.145), thus, no statistically significant difference in variances exists between the two groups' performance in these four cryptocurrency transactions. The results of the t-test, with a threshold of P>0.05, showed no difference in the means of both groups on the cryptocurrency score − (t(69) = 0.052, p = 0.959). This observation confirms that the provision of the SARS media guidelines did not improve the participants' performance in the questions not specifically addressed by them.

4.3.4 Analysis by tax literacy (Groups 1 and 2)

Graph 3: Impact of tax literacy on the ability of participants to determine the income tax consequences of cryptocurrency transactions.



The participants in both Group 1 and 2 did particularly well in question 1, with question 5 posing the greatest challenge for the participants. Both groups struggled with question 5, which resulted in Group 2's poorest achievement. Group 2 underperformed in all questions except

question 1. Those in Group 1 performed best in questions 1, 8 and 10, and outperformed Group 2 with their percentage of correct answers. It is interesting to note that Group 1's performance in question 10, which was not addressed in the SARS media guidelines, is higher than in the questions covered by the SARS media guidelines, other than in questions 1 and 8. By contrast, Group 2 consistently performed better in questions addressed by the SARS media guidelines.

Table 15: Summary of tax literacy performance versus cryptocurrency transactions statistical performance

Description of Groupings	Observation	Mean	Standard Error	Standard Deviation	95% Conf.	Interval
Group 1	36	4.139	0.304	1.823	3.522	4.756
Group 2	35	2.943	0.290	1.714	2.354	3.532
Total	**71**	**3.549**	**0.220**	**1.858**	**3.110**	**3.989**
Diff		**1.196**	**0.420**		**0.358**	**2.034**

Mean (diff) = mean (Group 1 – Group 2) ***t = 2.847***

H_0: mean (diff) = 0 ***degrees of freedom = 69***

H_a: mean (diff) < 0 ***H_a: mean (diff)! = 0*** ***H_a: mean (diff) > 0***

Pr(T < t) = 0.100 ***Pr(\|T\| ≥ \|t\|) = 0.006*** ***Pr(T > t) = 0.003***

The participants' statistical performance, presented in Table 15 above includes the mean, standard deviation. Levene's test had a p-value of p=0.548, which is greater than the threshold of P>0.05 (F(1, 69) = 0.365). These results suggest that the assumption of equal variances was not seriously violated. The results of the t-test, with a threshold of P>0.05, shows that the participants' tax literacy did have a statistically significant impact on their ability to determine the income tax consequences of cryptocurrency transactions (t(69) = 2.847, p = 0.006), such that on average Group 1 obtained a higher score on the cryptocurrency score (m = 4.139, sd = 1.82) compared to Group 2 (m = 2.943, sd = 1.714). This observation supports the conclusion that the participants' tax literacy level has a statistically significant factor in their understanding of cryptocurrency questions. Subsections 4.3.4.1 and 4.3.3.2 below explore the performance of the participants in both groups, in the cryptocurrency questions included and excluded from SARS media guidelines, respectively.

4.3.4.1 Analysis of the effect of tax literacy on the performance of participants in the cryptocurrency transactions included in the SARS media guidelines

Both groups performed well in these six questions, with a notable performance for both groups in question 1. The question posing the greatest challenge for the participants in both groups,

was question 2. The participants' percentage of correct answers in Group 1, outperformed that of Group 2's participants in all these cryptocurrency questions except for question 1. Group 1 had the greatest outperformance percentage gap observed in questions 6 and 8.

Table 16: Statistical performance of tax literacy versus cryptocurrency transactions with access to SARS media guidelines

Description of Groupings	Observation	Mean	Standard. Error.	Standard Deviation	95% Conf.	Interval
Group 1	36	2.917	0.271	1.628	2.366	3.467
Group 2	35	2.229	0.246	1.457	1.728	2.729
Total	**71**	**2.577**	**0.220**	**0.845**	**3.110**	**3.989**
Diff		**0.688**	**0.367**		**-0.044**	**1.420**

Mean (diff) = mean (Group 1 –Group 2) ***t = 1.875***

H_0: mean (diff) = 0 ***degrees of freedom = 69***

H_a: mean (diff) < 0 ***H_a: mean (diff)! = 0*** ***H_a: mean (diff) > 0***

Pr(T < t) = 0.968 ***Pr(\|T\| ≥ \|t\|) = 0.065*** ***Pr(T > t) = 0.0325***

The participants' statistical performance presented in Table 16 above includes the mean, standard deviation of the participants. Levene's test had a p-value of p= 0.446, which is greater than the threshold of P>0.05 (F(1, 69) = 0.587). The assumption of equal variances was not seriously violated. The results of the t-test showed no statistically significant difference in the means between Group 1 and Group 2 at the P>0.05 threshold (t(69) = 1.875, p = 0.065). This observation confirms that tax literacy did not have a significant impact on the ability of participants to determine the income tax consequences of cryptocurrency transactions in the questions addressed by SARS media guidelines.

4.3.4.2 Analysis of the tax literacy performance of participants in groups 1 and 2 in the cryptocurrency transactions excluded from the SARS media guidelines

The section below explores the impact of tax literacy on the groups' performance in the cryptocurrency questions that were not addressed by the SARS media guidelines (questions 4, 5, 9 and 10). Although both groups performed poorly in these four questions (with the exception of Group 1's response to question 10), the participants' percentage of correct answers in Group 1 outperformed the participants in Group 2 in all four questions. Group 1 achieved best in question 10, which is also the greatest outperformance percentage gap observed for these four cryptocurrency questions. The question posing the greatest challenge for both groups was question 5, in which Group 2 performed the worst of either group in any question.

Table 17: Statistical significance of tax literacy on performance in questions not addressed by the SARS media guidelines

Description of Groupings	Observation	Mean	Standard. Error.	Standard Deviation	95% Conf.	Interval
Group 1	36	1.222	0.155	0.929	0.908	1.537
Group 2	35	0.714	0.113	0.667	0.485	0.944
Total	**71**	**0.972**	**0.100**	**0.845**	**0.772**	**1.171**
Diff		**0.508**	**0.192**		**0.124**	**0.892**

Mean (diff) = mean (Control Group – Experimental Group) ***t = 2.639***

H_0: mean (diff) = 0 ***degrees of freedom = 69***

H_a: mean (diff) < 0 ***H_a: mean (diff)! = 0*** ***H_a: mean (diff) > 0***

Pr(T < t) = 0.995 ***Pr(|T| ≥ |t|) = 0.010*** ***Pr(T > t) = 0.005***

The statistical performance of the groups is presented in Table 17 above and includes the mean, standard deviation. The Levene's test resulted in p=0.052, which is slightly greater than the threshold of P>0.05 (F(1, 69) = 3.924). The assumption of equal variances was not seriously violated. The results of the t-test showed on average that the difference between Group 1 and Group 2 on the cryptocurrency score was statistically significant at a threshold of P>0.05 (t(69) = 2.639, p = 0.010), such that Group 1 had a higher mean score (m = 1.222, sd = 0.929) compared to Group 2 (m = 0.714, sd = 0.667). This observation confirms that participants' level of tax literacy did have a statistically significant impact on their ability to determine the income tax consequences of cryptocurrency transactions in the questions not addressed by the SARS media guidelines.

4.3.5 Analysis of the performance of participants on the questions included in the SARS media guidelines versus those excluded from these guidelines

The section below explores the performance of participants in the cryptocurrency questions addressed by the SARS media guidelines compared to those not addressed by these guidelines. The analysis draws from sections 4.3.3 and 4.3.4, which compared the performance of the participants in the Experimental and Control groups (provision of guidelines) and Groups 1 and 2 (tax literacy) in the cryptocurrency questions. In sections 4.3.3.1 and 4.3.4.1, the performances of the participants in the questions addressed by the SARS media guidelines (Included Group) was further explored. Sections 4.3.3.2 and 4.3.4.2 further explored the performance of the participants in the questions not addressed in the SARS media guidelines (Excluded Group). In the performance of these two groups, it should be noted that the Included Group does have the advantage of having access to more

questions, thus the distribution of these groups should be considered. The paired t-test was used to determine whether the mean of the dependent variable is the same in the two groups.

Table 18: Summary of statistical performance in the questions included versus excluded in the SARS media guidelines

Description of Groupings	Observation	Mean	Standard. Error.	Standard Deviation	95% Conf.	Interval
Included Group	71	2.577	0.187	1.574	0.772	1.172
Excluded Group	71	0.972	0.100	0.845	2.205	2.950
diff	**71**	**- 1.606**	**0.203**	**1.711**	**- 2.011**	**- 1.201**

Mean (diff) = mean (Excluded Group – Included Group) ***t = -7.907***

H_0: mean (diff) = 0 ***degrees of freedom = 70***

H_a: mean (diff) < 0 ***H_a: mean (diff)! = 0*** ***H_a: mean (diff) > 0***

Pr(T < t) = 0.000 ***Pr(\|T\| ≥ \|t\|) = 0.000*** ***Pr(T > t) = 1.000***

The statistical performance in the two groups is presented in Table 18 above, which depicts the mean and standard deviation of the participants, including the paired t-test statistic. The paired t-test derived a mean difference of -1.606, with a standard error of 0.203 of correct answers; the t-statistic was derived as t = -7.907 with a degree of freedom of 70. The paired t-test has a p-value of p=0.000, meaning that the means of the two groups differ significantly. This observation confirms that the questions covered by the SARS media guidelines were easier for the participants to answer correctly than those not covered by these guidelines. In 4.3.3 – 4.3.3.2, access to the SARS media guidelines did not significantly influence the performance of the participants in these two groups when answering questions, suggesting that it is the nature of the transactions themselves that give rise to this difference in performance. Overall, the level of tax literacy does influence the participants' understanding of the income tax consequences of transactions, and, as noted in 4.3.4, this observation is especially true in respect of the cryptocurrency transactions not addressed by the SARS media guidelines.

4.3.6 Conclusion of survey questionnaire analysis

The income tax consequences of the common cryptocurrency transactions identified in Table 4 above were used as the basis for formulating the questions tested in the experimental survey questionnaire that was shared with approximately 1550 potential participants. 150 participants began the survey, while only 71 of these completed the survey. The majority of these 71 participants were UCT APC Programme students, who specialised in the area of corporate governance, and were predominantly males in the 21 – 30 age group. The findings of the

experimental survey questionnaire completed by the participants were discussed in Sections 4.3.1 to 4.3.5.

The participants in the study generally struggled with the cryptocurrency questions regardless of whether or not they were supplied with the SARS media guidelines. The analysis performed supports the conclusion that those provided with the SARS media guidelines on the income tax consequences of cryptocurrency transactions did not perform better in the survey questions than those without the SARS media guidelines. This conclusion was true both in respect of those questions specifically addressed by the SARS media guidelines and those relating to other cryptocurrency transactions not specifically addressed by these guidelines.

Performance in the screening questions resulted in the participants being split into almost equal groups reflecting their level of tax literacy. Across the ten questions, participants in the tax literate group performed significantly better than those in the group not considered to be tax literate. The analysis performed on the effect of the tax literacy level of the participants supports the conclusion that a higher tax literacy level enhances their ability to correctly determine the income tax consequences of cryptocurrency transactions. Interestingly, the participants' performance was not statistically significantly different in the questions covered by the SARS media guidelines. In contrast, there was a statistically significant difference in the participants' performance in the questions not addressed by the SARS media guidelines. This fact supports the conclusion that tax literacy is especially likely to influence the participant's ability to correctly determine the income tax consequences of these cryptocurrency transactions in particular.

In the analysis performed on the performance of participants on the questions covered in the SARS media guidelines in comparison to those excluded from these guidelines, it was observed that the cryptocurrency questions not addressed by SARS media guidelines were more challenging for participants. The participants performed well in terms of the more common transactions, which were addressed by the SARS media guidelines. In contrast, the participants performed poorly in those questions not addressed by the SARS media guidelines. This fact supports the conclusion that those cryptocurrency transactions not covered by the SARS media guidelines are more complex and taxpayers are more likely to struggle with them. As already noted, the participants identified as not being tax literate had difficulty answering these questions, thus, providing further evidence that those particular cryptocurrency transactions are more complex.

Apart from the possible inadequacy of the current SARS media guidelines, participants' poor performance in these cryptocurrency questions could be due to the participants in the Experimental Group not having meaningfully engaged with the SARS media guidelines despite

having been provided with a copy. Regardless of the superior performance by participants with a higher tax literacy level, the performance for the questions not addressed by the SARS media guidelines was generally poor. A further contributing factor to these results may have been that, since the majority of participants were not regular cryptocurrency users, and that given their ‘novelty’ cryptocurrency transactions were unlikely to have formed part of the syllabus of their university studies, the manner in which these transactions were constructed in the survey questionnaire may have made them difficult to conceptualise.

5 CONCLUSION

5.1 RESEARCH QUESTIONS DISCUSSIONS

The first research question posed by this study asked whether the SARS media guidelines provided in its media statement of 2018 comprehensively addressed all the cryptocurrency transactions by the other benchmarked authorities' guidelines. These guidelines were found to be brief and vague, and did not comprehensively address the cryptocurrency transactions identified or make any reference to the relevant sections of the Act, suggesting that this statement was perhaps intended to be a temporary measure. For example, it did not elaborate or clarify what the normal cash or barter transaction rules that it referred to, would constitute, thereby assuming that the taxpayers had prior knowledge of these rules. The SARS media guidelines lacked worked examples that the other benchmarked authorities included in their guidelines. The inclusion of such elaboration and detail might not be practical for a media statement. However, the SARS media guidelines did address six out of the eleven cryptocurrency transactions identified through the benchmarking of the guidelines provided by other countries' tax authorities. The above findings, therefore, support the conclusion that the SARS media guidelines did not comprehensively address all the cryptocurrency transactions and users.

The second research question posed by the study asked whether the existing SARS media guidelines on the income tax consequences of cryptocurrency transactions provide taxpayers with a better understanding of the income tax consequences of transacting in cryptocurrency. This issue was tested using the survey questionnaire developed. The participants in the study were unable to determine the income tax consequences of cryptocurrency transactions, even when they were provided with the current SARS media guidelines. Furthermore, the participants struggled with the cryptocurrency questions which were not addressed by the SARS media guidelines. The findings of this part of the study, therefore, confirm that the SARS media guidelines are inadequate in their current form.

The third research question posed by the study asked what income tax consequences for the cryptocurrency transactions, in terms of the Act, for the five transactions not addressed by the SARS media guidelines. In the study, the income tax consequences were proposed, using the Act, in respect of the transactions not addressed by the SARS media guidelines, which were then incorporated within the questions asked in the survey questionnaire.

The fourth research question posed by the study asked whether those taxpayers with a sound foundation of tax knowledge would be better able to determine the income tax consequences of cryptocurrency transactions, than less knowledgeable taxpayers. The participants used in

the study had a strong tax background owing to their undergraduate and postgraduate studies, thus the study assumed that they all possessed above-average tax literacy skills in comparison to the average taxpayer. The evidence provided in the questionnaires indicated that the tax literacy level of the participants did have a statistically significant influence on their understanding of the income tax consequences of cryptocurrency transactions. The findings of the study, therefore, support the conclusion that a higher level of tax literacy improves taxpayers' ability to correctly determine the income tax consequences of cryptocurrency transactions. Intriguingly, the study participants' performance was not statistically significantly different in the cryptocurrency questions covered by the SARS media guidelines. This may be because the guidelines focus on the more commonly understood cryptocurrency transactions.

The generally poor performance of participants may have been influenced by other factors not controlled by the study. The participants were not regular cryptocurrency users, thus the transactions presented may not have been as easy to conceptualise as they would have been had participants been familiar with cryptocurrency transactions. The specific cryptocurrency transactions not addressed by the SARS media guidelines may not be common in SA, thus it may have been difficult for the participants to comprehend the income tax consequences of these transactions. Although participants had a strong tax background, the novelty of cryptocurrency transactions means that these are unlikely to have formed part of the syllabus in the participants' studies. Lastly, the participants could have found the construction of the survey questions difficult to interpret and this perceived complexity may have played a role in some participants choosing to discontinue their involvement in the study.

5.2 RECOMMENDATIONS

The findings of this study support the conclusion that the existing guidance issued by SARS, in the form of a media statement, is limited in scope in comparison to the tax guidelines of other countries and, thus, was insufficient to assist participants to correctly determine the income tax consequences of a range of cryptocurrency transactions. This study, therefore, recommends that SARS provide more comprehensive guidance on the income tax consequences of cryptocurrency transactions. The current SARS media guidelines should be improved for the cryptocurrency transactions already dealt with, and their scope should be expanded to include those transactions identified in the study that, to date, have not been addressed by SARS. In developing comprehensive guidance, consideration should be given to the approaches of other countries referenced in this study. Apart from the complex cryptocurrency transactions, comprehensive guidance should take account of both individual and business cryptocurrency transactions. The ATO and HMRC guidelines have specifically addressed the majority of possible cryptocurrency transactions of both individual and business

users. The HRMC, however, may be the preferred jurisdiction to use as a model, because its guidelines have both clearly and comprehensively covered the cryptocurrency transactions.

The benchmarked jurisdictions discussed in this report made use of a web-base to publish their tax guidelines, all of which are easily accessible globally and downloadable in printable format. The inclusion of worked examples, as offered by these other jurisdictions, plus a decision tree or flow chart, would assist SA taxpayers to assess the tax consequences of their transactions. The flow chart or decision tree could include references to the Act in order to highlight specific income tax consequences applicable to each branch or event selected. The inclusion of such aids should be considered by SARS, because having guidelines that are accessible, user-friendly and comprehensive are likely to assist in improving the public's tax compliance.

In the SA context, the recommended comprehensive SARS guide may be best positioned as either an Interpretation Note or a Comprehensive Guide, both of which are normally more detailed than the somewhat unusual, and seemingly temporary, media statement employed in 2018. The inclusion of references to the Act, as well as worked examples, will assist taxpayers in determining the impact of tax regulations on cryptocurrency transactions. The detailed application of the Act to those cryptocurrency transactions not yet addressed, as comprehensively outlined in Section 4.2.2 of this study, may inform the development of such an Interpretation Note or Comprehensive Guide.

Given that tax literacy significantly influenced the study participants' performance and the generally low tax literacy of SA taxpayers, the SARS guide is thus required to comprehensively and clearly address all cryptocurrency transactions. The participants with a higher level of tax literacy generally performed better when responding to the survey questionnaire, thus SARS should focus on improving tax literacy in general and, specifically, in relation to cryptocurrency transactions. As found in the study by Cvrlje (2015), improved tax literacy leads to improved tax compliance levels and morale.

Apart from the recommendations for an Interpretation Note or Comprehensive Guide from SARS and efforts to improve tax literacy, the study has identified areas that should be considered for amendment within the Act in order to cater for cryptocurrency transactions. Since both cryptocurrency and shares are defined as financial instruments per Section 1 of the Act, this study recommends that, given the similarities between a rights issue and a hard fork and/or airdrop, Section 40C be extended to stipulate that when a taxpayer acquires new cryptocurrency via such events the cost of acquisition be deemed to be a nil value of actual expenditure incurred.

Similarly, this study recommends that the list of the recognised stock exchanges (such as SA's Johannesburg Stock Exchange) be gazetted to include cryptocurrency exchanges since paragraph 31 (a) of the Eighth Schedule of the Act stipulates that the market value of a financial instrument is the ruling price listed on a recognised exchange. This inclusion would be in line with the draft regulation by the FSCA, which requires a cryptocurrency exchange to be listed as a financial services provider (FSCA, 2020). These amendments would assist taxpayers to determine the income tax consequences of cryptocurrency transactions.

5.3 LIMITATIONS, ASSUMPTIONS AND FURTHER RESEARCH OPPORTUNITIES

The study was conducted using the SARS media guidelines, in the form of a media statement released on 6 April 2018, as the basis for conducting the benchmarking exercise with other jurisdictions and the questions tested in the survey questionnaire. The media guidelines are not in the form of an Interpretation Note and therefore are not an "official publication" as defined (Tax Administration Act, 2012). No further guidelines had been issued regarding the income tax consequences of cryptocurrency transactions at the time the data was collected, analysed and the study concluded. Further developments in this area have only been in the form of a Tax Amendment Act, which was not meant as an additional directive, but an update to the Act.

The study was conducted with a focus on cryptocurrency, being a subsidiary category of crypto-assets, and represented by cryptocurrencies such as Bitcoin and Litecoin. Security and utility tokens, such as Neufund and Ethereum, did not form part of the research and may have tax consequences beyond or different to those considered in this study. Furthermore, the focus of this study was exclusively on the income tax consequences of cryptocurrency transactions, which include capital gains' considerations. The VAT, estate duty and other income tax consequences did not form part of this study and, consequently, these aspects may represent scope for further research.

As indicated earlier in this study, the participants were able to discontinue completing the survey at any point, as part of the ethical and voluntary participation considerations. The participants who discontinued their involvement could have done so for various reasons including, but not limited to, the questions being considered too long or too difficult, or due to a lack of interest in the subject matter. The discontinued surveys, coupled with the method used to collect the data, resulted in the generalisation of the study results on taxpayers or the sample population being inappropriate. In addition, the participants used in the study were predominantly UCT APC Professional Programme candidates and PGDA students, further making generalisation of study results to SA's taxpaying population inappropriate. The general taxpaying population is considered to have low tax literacy levels (Nanziri & Leibbrandt, 2018),

thus, the students participating in this study are not a representative sample. Despite these limitations, the quantitative results were considered sufficiently reliable to confirm the initial findings of the comparative analysis, namely that the current SARS media guidelines in their current form are inadequate regarding the tax implications of cryptocurrency transactions.

In the study, it was found that only two participants were cryptocurrency users and, as such, the engagement of more cryptocurrency users of either individual or business cryptocurrency transactions would have been appropriate. There is, thus, a scope of further research to obtain a more representative sample of taxpayers who, if possible, are also cryptocurrency users, to run a similar study.

5.4 CONCLUDING REMARKS

Despite the study being based on a small sample, the findings and outcomes have the potential to provide thought-provoking considerations regarding the impact of cryptocurrency transactions on the development of future income tax legislation. Cryptocurrency is a fast-developing area of both financial technology (fintech) and investments, with a huge uptake in recent years. Such a fluid industry requires a proactive and not a reactive approach to tax education to improve tax compliance and collection. Considering the rapid and consistent developments within cryptocurrencies, it would be in SARS' best interests to keep abreast with cryptocurrency developments and proactively develop comprehensive guidelines and amendments to the Act to cater for such developments.

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APPENDIX A: ETHICAL CLEARANCE CERTIFICATE

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29th October 2019

Mr Namhla Vumazonke
College of Accounting
University of Cape Town

Dear Mr Vumazonke

REF: REC 2019/10/038

INVESTIGATING THE ABILITY OF TAXPAYERS TO DETERMINE THE INCOME TAX CONSEQUENCES OF CRYPTOCURRENCY TRANSACTIONS IN SOUTH AFRICA

We are pleased to inform you that your ethics application has been approved. Unless otherwise specified this ethical clearance is valid for 1 year and may be renewed upon application.

Please be aware that you need to notify the Ethics Committee immediately should any aspect of your study regarding the engagement with participants as approved in this application, change. This may include aspects such as changes to the research design, questionnaires, or choice of participants.

The ongoing ethical conduct throughout the duration of the study remains the responsibility of the principal investigator.

We wish you well for your research.

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APPENDIX B: RESEARCH ACCESS TO STUDENTS

	RESEARCH ACCESS TO STUDENTS	DSA 100

NOTES

1. This form must be **FULLY** completed by all applicants who want to access UCT students for the purpose of research or surveys.
2. Return the fully completed **(a) DSA 100** application form **by email**, in **the same word format**, together with **your: (b) research proposal inclusive of your survey, (c) copy of your ethics approval letter / proof (d) informed consent letter** to: Moonira.Khan@uct.ac.za, Cc: Nadierah.Pienaar@uct.ac.za. You application will be attended to by the Executive Director, Department of Student Affairs (DSA), UCT.
3. The turnaround time for a reply is **approximately 10 working days.**
4. NB: It is the responsibility of the researcher/s to apply for and to obtain **ethics approval and to comply with amendments that may be requested;** as well as **to obtain** approval to access UCT staff and/or UCT students, from the following, at UCT, respectively: (a) **Ethics:** Chairperson, Faculty Research Ethics Committee' (FREC) for ethics approval, (b) **Staff access:** Executive Director: HR for approval to access UCT staff, and (c) **Student access:** Executive Director: Student Affairs for approval to access UCT students.
5. **Note:** UCT Senate Research Protocols requires compliance to the above, **even if prior approval has been obtained from any other institution/agency. UCT's research protocol requirements applies to *all* persons, institutions and agencies from UCT and external to UCT who want to conduct research on human subjects for academic, marketing or service related reasons at UCT.**
6. **Should approval be granted to access UCT students for this research study, such approval is effective for a period of one year from the date of approval (as stated in Section D of this form), and the approval expires automatically on the last day.**
7. **The approving authority reserves the right to revoke an approval based on reasonable grounds and/or new information.**

SECTION A: RESEARCH APPLICANT/S DETAILS

Position	Staff / Student No	Title and Name	Contact Details (Email / Cell / land line)
A.1 Student Number	VMZNAM001	Mr. Namhla Vumazonke	VMZNAM001@myuct.ac.za / 0761519653
A.2 Academic / PASS Staff No.			
A.3 Visitor/ Researcher ID No.			
A.4 University at which a student or employee	UCT	Address if *not* UCT:	
A.5 Faculty/ Department/School	College of Accounting, Faculty of Commerce		

A.6 APPLICANTS DETAILS If different from above	Title and Name	Tel.	Email

SECTION B: RESEARCHER/S SUPERVISOR/S DETAILS

Position	Title and Name	Tel.	Email
B.1 Supervisor	Prof. Shuan Parsons	021 650 4029	shaun.parsons@uct.ac.za
B.2 Co-Supervisor/s			

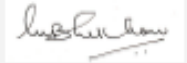
SECTION C: APPLICANT'S RESEARCH STUDY FIELD AND APPROVAL STATUS

C.1 Degree – If applicable	MCom: M.Com Candidate: Financial Reporting, Analysis and Corporate Governance
C.2 Research Project Title	Investigating the Ability of Taxpayers to Determine the Income Tax Consequences of Cryptocurrency Transactions in South Africa
C.3 Research Proposal	Attached: Yes ■ No ☐
C.4 Target population	Students doing Postgraduate Diploma in Accounting (PGDA) or the APC Professional Programme short-course in the College of Accounting
C.5 Lead Researcher details	If different from applicant:
C6. Will use research assistant/s	Yes ☐ No ■ If yes- provide a list of names, contact details :
C.7 Research Methodology and Informed consent	**Research methodology:** The study will utilise experimental research primary data and secondary data, the experimental data will be collected through surveys. Quantitative survey and qualitative interviews. **Informed consent:** The students would need to provide consent prior to taking the survey.
C.8 Ethics clearance status from UCT's Faculty Ethics in Research Committee /Chair (EIRC)	Approved by the UCT EIRC: Yes ■ With amendments: Yes ☐ No ■ (a) Attach copy of your UCT ethics approval. Attached: Yes ■ No ☐ (b) State date / Ref. No / Faculty of your UCT ethics approval: 29/10/2019 Ref. / Faculty: REC 2019/10/038 College of Accounting

SECTION D: APPLICANT/S APPROVAL STATUS FOR ACCESS TO STUDENTS FOR RESEARCH PURPOSE

(To be completed by the UCT - ED, DSA or Nominee)

	Approved / With Terms / Not	* Conditional approval with terms	Applicant/s Ref. No.:
D.1 APPROVAL STATUS	(i) Approved ■ ~~(ii) With terms~~ ~~(iii) Not approved~~	a) Access to students for this research study must only be undertaken after written ethics approval has been obtained. b) In event any ethics conditions are attached, these must be complied with before access to students.	VMZNAM001 / Mr. Namhla Vumazonke

D.2 APPROVED BY:	Designation	Name	Signature	Date of Approval
	Executive Director Department of Student Affairs	*Dr Moonira Khan*		*31 October 2019*

APPENDIX C: EXPERIMENTAL SURVEY QUESTIONNAIRE

Section 1: Ethical consent considerations

Thank you for participating in this research study, which has been approved by the UCT Commerce Faculty Ethics in Research Committee ***[REFERENCE: REC 2019/10/038]***. This research attempts to provide an indication of the complexity and understandability of the tax consequences of cryptocurrency in South Africa.

The study will explore the ability of participants (simulating taxpayers) to interpret the current tax legislation, in relation to Cryptocurrency transactions and how these transactions should be taxed according to the Income Tax Act, as interpreted by the South African Revenue Services (SARS). The study will present various cryptocurrency transactions to participants and ask them to determine the tax consequences of those transactions to the best of their ability.

Confidentiality will be observed professionally. Please understand that you have the right to withdraw your participation at any point during the study. The survey will take approximately ***15 - 20 minutes*** to complete, you might need something to write or a calculator.

Section 2: Questionnaire

Section 2.2 General questions

1. Please indicate your current level of study:

- ☐ B-Degree/BTech;
- ☐ Honours (PDGA/CTA);
- ☐ Professional Qualification (CA (SA), RGA, CISA, CIA, CIMA, ACCA etc);
- ☐ Master's Degree/ MTech; or
- ☐ PhD.

2. Please indicate your area of specialisation:

- ☐ Corporate Governance;
- ☐ Financial Reporting;
- ☐ Managerial Accounting and Finance;
- ☐ Taxation; or
- ☐ Other non-commerce industries.

3. What is your gender:

- ☐ Male;
- ☐ Female; or
- ☐ Prefer not to answer

4. What is your age group?

- ☐ 16 - 20
- ☐ 21 - 30
- ☐ 31 - 35
- ☐ 36 - 40
- ☐ 40 +
- ☐ Prefer not to answer

5. Are you currently transacting in Cryptocurrency?

- ☐ Yes
- ☐ No
- ☐ Prefer not to answer

6. Do you transact in cryptocurrency for the following purposes:

- ☐ Personal Investment?
- ☐ Employment purposes?
- ☐ As part of your business? Or
- ☐ Other non-commerce industries
- ☐ Prefer not to answer

7. Have you ever submitted a tax return?

- ☐ Yes
- ☐ No

Section 2.3: Screening taxation test questions

1. Siyabonga, a South African resident, has sold his 10.5m Yacht on 2 February 2019 for R500 000, which he won during the Volvo Yacht Race in 2001.

To assist him in completing his 2019 Income Tax return, indicate what kind of income this presents:

- ☐ Proceeds of a capital nature
- ☐ Proceeds representing gross income
- ☐ Proceeds from the disposal of a personal use capital asset excluded from taxable income
- ☐ Allowable deduction from taxable income
- ☐ None of the Above

2. Siyabonga, a South African resident, has relocated from his primary residence which he has lived in since 2003 when bought it for R300 000. On 2 February 2019, he sold his house for R2 500 000.

What is the taxable capital gain effect on his income tax payable for the 2019 Assessment? This was his first and only disposal since becoming a registered taxpayer:

- ☐ No effect to taxable income this is a primary residence
- ☐ R2 200 000
- ☐ R2 500 000
- ☐ R200 000
- ☐ None of the above

3. Kruger Stop (Pty) Ltd, a South African resident, received an interest-free loan from the Bank of Botswana for BWP 100 000 on 21 August 2018, repayable on 1 August 2019. Kruger Stop used the loan to purchase a game viewing vehicle on 23 September 2018, when it was brought into use. Kruger Stop has a 31 December year-end.

The spot rate on 21 August 2018 was BWP1 = R1, 37 and BWP1 = R1, 20 on 31 December 2018, with the average rate for the year of assessment being BWP1 = R1, 40. The foreign exchange gains or losses to be included in his taxable income of 2018 is as follows:

- ☐ A decrease in taxable income of R 3 000
- ☐ An increase in taxable income of R 20 000
- ☐ An increase in taxable income of R 17 000
- ☐ No inclusion until paid in full R 0
- ☐ None of the above

4. Waterfall (Pty) Ltd (Waterfall), a South African resident, did not trade in the 2019 year of assessment. The company had an assessed loss of R300 543 in the previous year of assessment. Can Waterfall carry forward the R300 543 assessed loss to its 2020 year of assessment?

- ☐ Waterfall can only carry forward 28 % of the assessed loss;
- ☐ Waterfall can carry forward 100 % of the assessed loss
- ☐ Waterfall cannot carry forward the assessed loss
- ☐ It depends on the trading activities of Waterfall in 2020
- ☐ None of the above

Section 2.4: SARS guidance

The link below will assist you in enabling you to answer the following questions on the tax consequences of cryptocurrency transactions:

SARS Cryptocurrency Transactions Guidance

Section 2.5: Quiz questionnaire

1. Trading in cryptocurrency, through exchanging of any type of cryptocurrency for fiat currency, or vice versa;

Roger, a South African resident who was an investor in cryptocurrency, decided to liquidate his investments to cover his planned purchase of a home. He exchanged his 100 Ether (or Ethereum) tokens for South African Rands on 31 December 2018.

His 1 Ether tokens had a market value of R5 500 on 31 December 2018 and were worth R5 000 when he purchased them in September 2017.

How should he treat this transaction in his 2019 year of assessment?

- ☐ Increase in capital gains of R 500
- ☐ Personal use asset exclusion from capital gains R 0.00
- ☐ Increase in taxable income of R 500
- ☐ Increase in taxable income of R 5 500
- ☐ None of the above

2. Trading in cryptocurrency, exchanging of one type of cryptocurrency for another type of cryptocurrency;

Amith, a 28-year-old South African resident, is a well-known cryptocurrency trader. The following transactions occurred in 2018 and 2019:

On 28 February 2018, he exchanged 5 Bitcoins (originally purchased for R750 000) for 100 Ether tokens valued at R500 000. On 27 February 2019, he sold his 100 Ether tokens for R600 000.

How should he treat this transaction in his 2019 year of assessment?

- ☐ Increase in an assessed capital loss of R150 000
- ☐ Increased in capital gains of R100 000
- ☐ A decrease in taxable income of R150 000
- ☐ Increase in taxable income of R100 000
- ☐ None of the above

3. Obtaining cryptocurrency through rewards from mining processes;

Amahle, a 27-year-old South African resident and an avid cryptocurrency miner, obtained 10 Bitcoins, with a market value of R1 000 000, as a reward for her mining efforts on 27 January 2019. In the process of her mining, Amahle incurred expenditure of R20 000 relating to her mining operations. On 25 March 2019, she sold her Bitcoins for R1 200 000, which was the market value of the Bitcoins on that day.

How should she treat this information in her 2019 and 2020 years of assessment?

- ☐ An increase in taxable income of R 980 000 in 2019 and of R1 200 000 in 2020
- ☐ An increase in taxable income of R1 000 000 in 2019 and of R 200 000 in 2020
- ☐ An increase in taxable income of R 980 000 in 2019 and of R 200 000 in 2020
- ☐ A deduction of R20 000 in 2019 and an increase in taxable income of R1 200 000 in 2020
- ☐ None of the above
- ☐

4. Blockchain hard fork, resulting in new cryptocurrency over and above the original (e.g. Bitcoin – Bitcoin Cash), includes receiving an airdrop of cryptocurrency (marketing or advertising campaign);

During Amahle's mining efforts on 27 January 2019, a hard fork occurred, which led to the creation of Bitcoin Cash tokens with a market value of R100 000. In August 2019, she disposed of her Bitcoin Cash tokens for R120 000.

How should she treat this information in her 2019 and 2020 years of assessment?

- ☐ An increase in taxable income of R 100 000 in 2019 and capital gains of R 20 000 in 2020
- ☐ An increase in capital gains of R 120 000 in 2020
- ☐ An increase in taxable income of R 100 000 in 2019 and of R 20 000 in 2020
- ☐ An increase in taxable income of R 120 000 in 2020
- ☐ None of the above

5. Donating cryptocurrency to another person, including to charity;

Pansy, a 30-year-old South African resident, during the 2019 year of assessment made her only donation of 2 Bitcoins from her investment portfolio, which she inherited on 30 June 2015 on which date the market value of one Bitcoin was equal to R5 000. Both donations were made on 20 February 2019 (₿1 = R115 000), as follows:

- One Bitcoin to her friend Alfonso for his 30th birthday; and

- One Bitcoin to UCT, a PBO for income tax purposes, for funding Actuarial Science students in 2020.

What would her capital gains be after taking into account these two donations? Ignore any possible donations tax consequences.

- ☐ R 220 000
- ☐ R 110 000
- ☐ R 115 000
- ☐ R 230 000
- ☐ None of the above

6. Making payments in cryptocurrency, in exchange for products or services;

Alfonso, a 30-year-old South African resident, decided to spoil himself using the donated Bitcoin from Pansy (₿1 = R115 000 on 20 February 2019), to buy an LG C8 77 Inch OLED TV, which was on special at R120, 000.00 on Click&Save.com on 25 February 2019. Click&Save.com is a South African resident company and a leading eCommerce retailer in South Africa. Bitcoin was trading at ₿1 = R120 000 on 25 February 2019.

How should he treat this transaction in his 2019 year of assessment? Ignore any donations tax consequences.

- ☐ No effect on taxable income, as no cash changed hands
- ☐ An increase of R120 000 in aggregate capital gains
- ☐ An increase of R5 000 in aggregate capital gains
- ☐ No effect to taxable income as Bitcoin used to purchase personal use asset
- ☐ None of the above

7. Receiving cryptocurrency in exchange for products or services;

Click&Save.com, a South African resident company, received one Bitcoin from Alfonso when he purchased an LG C8 77 Inch OLED TV on 25 February 2019, which was on special at R120 000.00 (Cost R100 000). Bitcoin was trading at ₿1 = R120 000 on 25 February 2019. This was the only transaction in Bitcoin that has occurred for Click&Save.com in the 2019 year of assessment. Click&Save.com is neither an investor nor a trader in cryptocurrency; however, whenever cryptocurrency is received during the year it is disposed of immediately to eliminate the risk of changing values.

How should the Financial Manager treat this transaction for the year of assessment ended 28 February 2019?

- ☐ Increase in taxable of income of R120 000
- ☐ Increase in taxable of income of R20 000
- ☐ Increase in taxable of income of R100 000
- ☐ No effect on taxable income as proceeds equals gross income and deductible expenditure
- ☐ None of the above

8. Receiving cryptocurrency as payment of salary for employment purposes;

Sandiso works as an employee at SAcryptoexchange. SAcryptoexchange gives its employees an option to receive their performance bonus in Bitcoins or South African Rands. In his 2019 year of assessment, Sandiso opted to receive one Bitcoin with a market value of R120 000, rather than a cash amount on 25 February 2019. On 23 March 2019 Sandiso sold the Bitcoin he had received for R130 000.

How should he treat this transaction in his 2019 year of assessment?

- ☐ An increase in taxable income of R 120 000 in 2019 and capital gains of R 10 000 in 2020
- ☐ An increase in capital gains of R 10 000 in 2020
- ☐ An increase in taxable income of R 120 000 in 2019 and R 10 000 in 2020
- ☐ An increase in taxable income of R130 000 in 2020
- ☐ None of the above

9. Making salary payments in cryptocurrency;

SAcryptoexchange gives its employees an option to receive their performance bonuses in Bitcoins or South African Rands. In its 2019 year of assessment, SAcryptoexchange transferred 1 Bitcoin (purchased by SAcryptoexchange at ₿1 = R115 000 on 20 February 2019 as part of its trading stock) with a market value of R120 000 to an employee who opted to receive it in lieu of a cash bonus.

How should the Financial Manager treat the transaction in the year of assessment ending 28 February 2019?

- ☐ A decrease in taxable income of R120 000
- ☐ A decrease in taxable income of R 5 000
- ☐ A decrease in taxable income of R115 000
- ☐ Increase in taxable income of R 5 000
- ☐ None of the above

10. Initial coin offerings, which is when a new cryptocurrency is introduced to the market;

Post-It, a South African resident company, finally listed its cryptocurrency, Quickpay, in 2019. Quickpay is a payment token, which may be redeemed to pay for the services offered by Post-it. The ICO yielded R10 million from the sale of Quickpay tokens on 25 February 2019.

How should the Financial Manager of Post-It treat the transactions in the year of assessment ending 28 February 2019?

- ☐ An increase in taxable income of R10 million
- ☐ A capital gain of R10 million
- ☐ No effect on taxable income, because the amount represents the equity of Post-It
- ☐ No effect on taxable income, because Post-It has not yet performed services for token holders
- ☐ None of the above