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Multiple media use, polychronicity and multitasking:
A review of literature and proposed research directions.

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Abstract

In deciding which media to consume, individuals have an extensive choice through; television, press, radio, cinema and the internet, which enables access to new media alternatives such as YouTube, Facebook and web blogs. In this environment, the consumption of more than one medium at a time is commonplace. The principal aims of this paper include; an appraisal of the current state of knowledge in relation to the phenomenon of multiple media use, identification of the presence of a research gap in this domain and an outline of proposed future research directions. In relation to multiple media use, the review of extant literature establishes that this topic is an emerging area of research, at the early stages of development. The limited body of work is largely descriptive in nature, lacking theoretical underpinning and making no attempt to explain the phenomenon, hence indicating a potential opportunity to advance knowledge in this domain. Four potential research directions are identified.

Biography

Helen's research interests encompass the marketing communications domain and more specifically advertising and media planning. Currently, research work in this area focusses on the study of multiple media use and advertising avoidance. Helen is also a member of the eCommerce Consumer Research Unit at Kingston Business School and is Co-chair of the Marketing Communications Special Interest Group (SIG) for the Academy of Marketing. As a Principal Lecturer at Kingston University she fulfils the role of Associate Head of the Department of Strategy, Marketing and Innovation in the Faculty of Business and Law. Her former industry background is in advertising and media planning at J Walter Thompson where she worked for several years prior to joining Kingston Business School.

Keywords: multiple media use; multitasking; polychronicity; threaded cognition

1.0 Introduction

When making decisions about which media to consume, individuals have a number of alternatives: for example; television, press, radio, cinema and internet. In addition to the traditional forms of media communication, advances in technology allow media communication through multiple devices, in different settings, resulting in extensive media access for consumers. 'We now get our print on the PC, our TV on the DVR, our webisodes on our cell phones, and our satellite radios on our Walkman', (Carlin, 2005, p.2). This gives the consumer a much higher level of control over their media consumption than in the past. According to Pilotta and Shultz, 'the audience determines media exposure, not the media delivery system. The consumer selects the media form(s) they will access and use. They determine the amount of time they will spend', (2005, p.21). Further control is also permitted by the growth of on-demand media services (Webster & Ksiazek, 2012); for example, via television time-shift viewing options offered by television providers such as Sky.

The proliferation of media has fragmented the market to the extent that numerous media vehicles within each medium compete for the attention of the media consumer. For example, in the press medium, an individual wishing to read 'The Times' newspaper, now has the choice of a traditional paper copy or an electronic version, via a laptop, tablet or smartphone. In addition, new media developments, such as user-generated media including; YouTube, Facebook and web blogs add to the plethora of media choices. The continuing fragmentation and development of the media landscape has an effect on all parties involved, namely; advertising, creative and media planners; media brand owners selling space or airtime, and consumers of media. Fragmentation may be considered advantageous to the media consumer in terms of increased choice, but for the media planner, the increased complexity of the media landscape poses a challenge.

In a media environment providing so much choice, consumption of more than one medium at a time is made possible by continual advancements in technology. In the literature, this phenomenon is variously termed: 'simultaneous media consumption' (Pilotta & Schultz, 2005); 'polychronic media

consumption' (Daugherty, Gangadharbatla & Kim, 2005) and 'media multitasking' (for example, Foehr, 2006; Bardhi, Rohm & Sultan, 2010). Multiple media use is confirmed by several empirical studies (for example, Pilotta & Shultz, 2005; Foehr, 2006; Bardhi et al., 2010; Brasel & Gips, 2011). The simultaneous media usage study (SIMM) run by BIGresearch in the U.S., reports that around half of all media consumption time is spent in multitasking situations, with numerous dual combinations of media evidenced (Pilotta & Shultz, 2005). Foehr (2006) illustrates a 'time-compression' phenomenon amongst young consumers, whereby overall time spent consuming media is reduced by 20% due to the overlapping of media consumption during multitasking, thus affording a higher level of media consumption in a given time period. Furthermore, other empirical work, such as a study by Enoch and Johnson (2010) indicates that simultaneous media usage occurs in a variety of settings, with the home, restaurants or bars, and at work, being identified as the most popular locations. 'Media users are using different media platforms at different times and in different places for different purposes – the best available screen for their location', (Enoch & Johnson, 2010, p.125). These findings are relevant to the media planning function, as discussed below.

The core principles of media planning are the effective and efficient matching of the media to the target audience, with the aim of gaining maximum exposure of the advertising message at minimum cost. Following this, whilst the practice of multiple media use presents added complexity for media planners and the advertising media industry, there are possible synergistic benefits. For example, data analysis of Google search patterns, reported by Zigmond and Stipp (2011), indicate that multitaskers often pay attention to TV ads, and if interested in a particular product, will search online to gather more information. In conjunction with the previous discussion, these findings indicate that further examination of the phenomenon of multiple media use is valuable, in particular to advertising media planners endeavouring to optimise media budgets on behalf of their clients. To further our understanding of the phenomenon, it is necessary to examine its theoretical foundations, to endeavour to find explanations for multiple media use, which in turn will contribute to more effective media planning procedures in relation to advertising campaigns.

A review of extant literature on multiple media use establishes that empirical research in this area is very limited, with the majority of studies conducted relatively recently, hence leading to the conclusion that this is an emerging research area in its early stages of development. The principal aims of this paper include; an appraisal of the current state of knowledge in relation to the phenomenon of multiple media use, identification of the presence of a research gap in this domain and an outline of proposed future research directions.

2.0 Review of literature

2.1 Multiple media use

The literature reveals inconsistencies regarding definitions for multiple media use and related terminology used to label the phenomenon. It is defined using various terms including: 'media multitasking' (Bardhi et al., 2010; Foehr, 2006; Wang, Srivastava, Powers, Brady, D'Angelo, J. & Moreland, 2012); 'simultaneous media usage' (Pilotta, Shultz, Drenik & Rist, 2004; Pilotta & Shultz, 2005); 'polychronic media consumption' (Daugherty et al., 2005) and 'multitasking with media' (Jeong & Fishbein, 2007). In conjunction with the variation in terminology, examination of Table 1 (p.24) indicates confusion surrounding the conceptualisation of definitions. Although all definitions include an aspect of multiple media use, inconsistencies are evident with respect to the distinction between: preference and behaviour; commercial and non-commercial media; media and non-media; 'a single point in time' and 'during a given time period'.

A limited number of empirical studies are identified in extant literature examining the topic of multitasking in the media context. These studies include the investigation of: the generational composition of multitasking individuals; the prevalence of media multitasking; combinations of multiple media use and the frequency of switching behaviour (Brasel & Gips, 2011). The composition of the media multitasking audience is addressed in a study by Carrier, Cheever, Rosen, Benitez and Chang (2008) among three generations: 'Baby Boomers' (born between 1946 -1964), 'Generation X'

(born between 1965 -1979) and the 'Net Generation' (born between 1980 - present); endorsing the view that media multitasking is most prevalent among members of the latter group, followed by 'Generation X' and lastly the 'Baby Boomers'. This finding, also confirmed by other studies (for example, Foehr, 2006; Pilotta & Shultz, 2005), is to be expected when one considers that the 'Net Generation' have spent their formative years in a period of rapid advancement in media technology.

Analysis of SIMM data by Pilotta and Shultz (2005) indicates that between 40-65% of total media consumption time is accounted for by media multitasking, with heavy media consumers found to be more likely to multitask (Pilotta et al., 2004; Foehr, 2006). Bardhi et al. (2010, p.328) report that 'media multitasking is the way young consumers interact with commercial media' in their qualitative study of young consumers. While such qualitative findings are not generalisable to a general population, these findings concur with Pilotta et al. (2004) and Pilotta and Shultz (2005), providing further confirmation of the presence of the phenomenon of multiple media use.

Numerous combinations of media multitasking behaviour are identified by analyses of the SIMM studies (BIGresearch) in papers by Pilotta and Schulz (2005) and Pilotta et al. (2004), indicating that some media combinations are more popular than others, for example; TV with Internet and TV with newspapers. Further, this work identifies that during media multitasking activities, more attention is paid to one medium than the other, to which the terms, foreground and background are attributed (Pilotta & Shultz, 2005). An observational study using a TV and computer combination also supports this finding (Brasel & Gips, 2011). While these studies provide valuable behavioural information, analysis is restricted to two-way combinations of media. Day to day observations indicate that media multitasking can include more than two media, suggesting that future empirical research should take account of larger media multitasking combinations. While these studies identify what media consumers are doing, by examining combinations of media multitasking behaviour, no attempt is made to examine the underlying reasons for this behaviour which is an important omission. Continuing the debate, Brasel and Gips (2011) observational study of TV and computer multitasking

behaviour reveals noteworthy findings in relation to the speed of switching, which is remarkably fast and frequent between the two media, at an average of four switches per minute. These findings have important implications for researchers attempting to develop an understanding of media multitasking behaviour. While this study examines just one combination of media, one could envisage how it could be replicated for other media combinations, for example, TV and newspapers. In addition, a particularly interesting finding of this study, in relation to behavioural measurement, is that participants greatly underestimate their switching rate in recall measures as compared with observed data, thus emphasising the importance of careful consideration of appropriate measures for future empirical work in this area.

In summary, the few studies to date comprise empirical work to confirm the prevalence of multiple media use and identify various combinations of media multitasking behavioural activity, addressing both 'media with media' and 'media with other activity' permutations. Extant work is largely descriptive in nature and universally suffers from the constraint of two-way analyses of media multitasking, rather than larger combinations of media. With the exception of the qualitative study by Bardhi et al. (2010), no attempt is made to explain the underlying reasons for media multitasking. A limited attempt is made to examine antecedents of multitasking resulting in the identification of audience and media factors (Bardhi et al., 2010; Carrier et al., 2009; Foehr, 2006; Jeong & Fishbein, 2007), but with the exception of Carrier et al. (2009), this work is questionable due to its lack of theoretical grounding. Consequences of multitasking behaviour have been addressed to a very limited extent (Bardhi et al., 2010; Wang & Tchernev, 2012; Ophir, Nass & Wagner, 2009; Voorveldt, 2011; Srivista, 2013), although again these studies only examine very limited combinations of media. The findings of these studies indicate inherent advantages and disadvantages in the practice of multiple media use, which are of interest in terms of potential future empirical work to investigate the outcomes of this phenomenon.

Collectively, the limited nature and scope of empirical work in the area of multiple media use, together with the fact that it is described as an emerging area of research (Lin, 2009), and a 'special case' of multitasking by Rosen, Carrier and Cheever (2013), indicate that there is a potential research opportunity in this domain. In particular, the finding that existing empirical work lacks theoretical underpinning and makes no attempt to explain the phenomenon of multiple media use, provides an opportunity to advance knowledge in this domain. The preceding review of extant literature distinguishes the concepts of polychronicity and multitasking as relevant in the study of multiple media use. These concepts are now investigated more fully to establish their foundations.

2.2 Polychronicity and multitasking

A comparison of the definitions of polychronicity and multitasking identified in the literature (Table 2, p.25) suggests that the two concepts are closely linked. There appears to be universal agreement that the concept of polychronicity was introduced by Hall (1959), an anthropologist, in his book 'The Silent Language', in which he argues that differences in behaviour exist between individuals in polychronic and monochronic cultures. Continuing the focus on behaviour, he later describes polychronicity as 'a cultural variable involving two different ways of organising activities'(Hall, 1983, p.45), where monochronic and polychronic approaches are positioned as opposites (Hall & Hall, 1990). Palmer and Schoorman (1999) adopt a multi-dimensional approach, comprising: preference for time use; time tangibility and context, further refining the original definition by Hall (1959). In a published interview with Bluedorn (1998), Hall broadens the meaning to include the notion of value. Further, he contends that within any culture, the distinction between monochronic and polychronic time is fundamental as 'everything in life occurs in a time frame, most of which is taken for granted' (1998, p.109). A conceptual paper by Bluedorn, Kaufman and Lane (1992) emphasises preference, suggesting that rather than opposites, there are degrees of polychronicity, and that orientation of individuals, groups, organisations and cultures is likely to vary along a continuum, with extremes of monochronic or polychronic behaviour at each end of the scale. Adding to the debate (but not

providing a definition), Persing (1998), in relation to creativity within the work environment, stipulates that cognitive tasks as well as practical ones should be included in the establishment of polychronic or monochronic preferences.

In 1999, Bluedorn, Kallaith, Strube and Martin proposed an alternative definition, emphasising the aspects of preference and belief (rather than behaviour) in relation to polychronicity. Supporting this opinion, other authors have accepted this definition of polychronicity (Schell & Conte, 2008; Conte & Gintoft, 2005; Konig, Oberarcher & Kleinmann, 2010). The most recent definition, by Poposki and Oswald (2010), insists that polychronicity is a non-cognitive variable. The definition is, by the authors' admission deliberately narrow, in line with their opinion that the definition of polychronicity should include only the preference to multitask, thus omitting the behavioural aspect. The explicit focus on the 'task' aspect of polychronicity and the specification that it is non-cognitive in nature differs from previous definitions, thus adding to the definitional debate. However, the omission of non-cognitive tasks is problematic, leading to the exclusion of important areas, such as the creative industry, as mentioned earlier (Persing, 1998). Similarly, Konig and Waller (2010) also emphasise the preference to multitask in their definition of the same year, thus reinforcing the `emphasis on preference.

The preceding review evidences disagreement in the literature regarding the exact meaning of polychronicity. Early definitions by Hall (1959; 1983) focus solely on behaviour in the context of culture, although subsequently, the meaning is extended to encompass the notion of value (Hall, 1998). The definitions by Bluedorn et al. (1999) and Palmer and Schoorman (1999) take a different perspective, emphasising the aspect of preference rather than behaviour, but are still firmly rooted in the cultural context. In addition to preference, Bluedorn et al. (1999) emphasise belief, while Palmer and Schoorman (1999) highlight the aspect of time tangibility. More recently, definitions of polychronicity have firmly emphasised only the preference for doing several things at a time (Konig & Waller, 2010; Poposki & Ozwald, 2010) as opposed to the behavioural aspect. Notable differences

are evident in relation to whether polychronicity comprises: individuals or groups, tasks performed simultaneously or within a time frame and whether cognitive tasks should be included or not. Sanderson (2012) provides a constructive clarification of the various definitional perspectives in a matrix depicting preference and belief by: individual; group; team; organisation and nation.

Multitasking, as defined by Delbridge (2000), implies frequent task switching within a time period as indicated in Table 2 (p.24). The definition by Oswald, Hambrick and Jones (2007) is more detailed, specifying that there must be a 'conscious' shifting and that the time scale must be short. Both multitasking definitions reveal the notion of task switching as a common element of multitasking behaviour. Consensus is reached regarding the presence of multiple individual tasks and both definitions include elements of time. Although there is disparity with respect to the lengths of time involved in multitasking situations, these definitions are essentially the same. Task independence and performance concurrency are the two main principles highlighted by Benbunan-Fich, Adler and Mavlanova (2011) in relation to the time period involved in multitasking. The principle of independence implies that tasks are self-contained, whereas the principle of concurrency suggests that multiple tasks take place with temporal overlap during a specific time period. Further, it is suggested that the organisation of tasks can be either: sequential, with one task starting as another finishes; parallel, when concurrent tasks take place at the same time; or interleaved, where a task is suspended in favour of another task and then returned to (Bluedorn et al., 1992). Salvucci and Taatgen (2011) expand this debate, proposing that multitasking activities should be conceptualised along a continuum, based on the amount of time spent on one task before switching to another, ranging from seconds, through minutes to hours. This notion is considered to be of particular interest in relation to multiple media use, in attempting to categorise different combinations of media consumption, leading to a better understanding of the phenomenon.

The definitional review reveals that there is a degree of overlap between the definitions of polychronicity and multitasking, in particular where they refer to 'doing things at the same time',

emphasising the behavioural aspect of the phenomena. In contrast to the definitions of polychronicity, which include elements of preference for polychronic behaviour and belief that this is the best way to do things, the multitasking definitions focus solely on the behaviour of individuals in performing multiple tasks within a time period. Taking this into account, the recommendation put forward by Konig and Waller (2010), which proposes that the term polychronicity should be used to describe the preference for doing several things at a time, and the behavioural aspect of polychronicity should be referred to as multitasking is sound. Further, a clearer distinction between the two concepts is achieved. Their suggestion provides valuable guidance for future empirical work in this domain, with succeeding implications for the measurement of polychronicity and multitasking.

The requirement to measure polychronicity, in order to advance the understanding of the concept, has led to the development of several measurement scales, (Kaufman, Lane and Lindquist, 1991; Bluedorn et al., 1992, 1999; Kaufman & Lindquist, 1999; Lindquist & Kaufman-Scarborough, 2007; Popowski & Oswald, 2010). The first documented attempt is by Kaufman et al. (1991), who developed and tested the Polychronic Attitude Index (PAI), with the intention of discovering whether individuals are aware of their polychronic time use. It is based on the premise that there is no finite amount of time during a day, since individuals can (if they choose) do more than one thing at a time, thus displaying polychronic behaviour. This study represents a significant contribution to the measurement of polychronicity, with its strong emphasis on activity levels and behaviour. Bluedorn et al. (1992) extended the examination of polychronicity to include an organisational perspective, arguing that individuals, groups and organisations are likely to vary in their monchronic-polychronic time use along a continuum. The main contribution of this work is in its comparative value, via the 'orientation comparison', a chart which enables comparison between the monochronic-polychronic orientation of individuals, departments and organisations. Later, in a non-organisational context, Kaufman-Scarborough and Lindquist (1999) revisited and revised the PAI, to measure the way in which consumers' feel about polychronic time use. In response to concerns by contributors to the

polychronic debate, about whether the original scale was indeed non-context specific, an item which referred to the situation specific 'at my desk' was removed, thus forming a three item scale, termed the MPAI3. Pursuing the issue of measurement, a further development is found in the empirical work by Bluedorn et al. (1999). Their ten item Inventory of Polychronic Values (IPV), based in part on the PAI, was specifically developed to measure polychronicity as a 'dimension of organisational culture' (p. 207). The IPV focuses on the preference to be engaged in two or more tasks or events simultaneously and the belief that this is the best way to do things in the organisational setting, where it has been extensively tested and confirmed as a valid and reliable measure. By far the most dominantly applied scale is the IPV (Bluedorn et al., 1999), followed by the PAI and its modified version, the MPAI3. It is important to note however, that the IPV has only been used in its original form in three out of the eight the studies in which it is adopted, leading to the conclusion by this author that this scale is domain specific and not 'general' enough to be readily applied across a range of contexts (Table 3, p.25).

More recently, Lindquist and Kaufman-Scarborough (2007) have revisited and extended the PAI scales developed in 1991 and 1999, into a five item measure named the Polychronic-Monochronic Tendency Scale (PTMS), which attempts to measure: preference to behave; reported behaviour; time efficiency; comfort in behaving and liking of juggling in polychronicity. The chief motivation for this empirical work was the search for a 'general' measure which 'more thoroughly reflects the multidisciplinary theory underlying polychronic-monochronic tendency' (Lindquist & Kaufman-Scarborough, 2007, p.262). The development of the PMTS is founded on the view that a person inherently possesses a general polychronic-monochronic tendency. The most recent attempt to measure individual polychronicity, the Multitasking Preference Inventory (MPI), (Poposki & Oswald, 2010), makes use of a 14-item measure, reflecting the preference to multitask. This measure is based on the view that previous definitions and resultant measures of polychronicity (discussed above), have led to confusion. The MPI is based on a much narrower conceptualisation of polychronicity than its predecessors, resulting in a restricted measure reflecting only 'an individual's

preference for shifting attention among ongoing tasks' (Poposki & Oswald, 2010, p.250). The focus on the individual is in line with previous measures, for example, the IPV (Bluedorn et al., 1999). Nevertheless, this scale is considered too narrow, based on its non-cognitive definition and therefore unsuitable for many contexts in which cognitive tasking is important. Neither the PMTS (Lindquist & Kaufman-Scarborough, 2007) nor the MPI (Poposki & Oswald, 2010) has been used in subsequent empirical work to measure polychronicity.

The preceding evaluation underlines the lack of consensus regarding the conceptualisation of polychronicity, and this is clearly reflected in the variety of measurement instruments. This lack of clarity is potentially problematic (Palmer & Schoorman, 1999; Poposki & Oswald, 2010) and should be noted by future researchers in this area. However, more recently, a much clearer position has emerged on the definition of the concept, namely that the term polychronicity should only be used to refer to the preference to multitask (Konig & Waller, 2010), as discussed earlier. Maintaining this position, the IPV (Bluedorn et al., 1999), based on a definition emphasising preference and belief, appears the most appropriate measure for future empirical work, as the most widely adopted and tested scale. However, this measure is firmly rooted in the context of organisational culture and therefore highly domain specific. The recently developed MPI scale (Poposki & Oswald, 2010) is based on the preference to multitask, but its focus is too narrow, while the PMTS measure (Lindquist & Kaufman-Scarborough, 2007) is considered not to represent a true measure of polychronic tendency. As a consequence, it is concluded that extant measures of polychronicity are unsatisfactory, and for future work in this domain, further scale development work is needed. Continuing the discussion, the closely linked concept of multitasking measurement is now examined.

The underlying theoretical perspective for the majority of empirical studies of multitasking lies in cognitive psychology, originating from empirical work in the fields of human resource management, education, computing and media. Empirical research is divided between the aspects of multitasking behaviour and its outcomes, based on the consensus in the literature regarding the definition of

multitasking discussed earlier. The review of extant literature on multitasking reveals that in contrast to polychronicity, the measurement of multitasking utilises a range of research methods, including: proprietary secondary data; observation; experiments; cross-sectional surveys and a longitudinal diary panel, as summarised in Table 4 (p.25). Extant measures of multitasking identified in this review reflect the type of method used. For example, in a cross-sectional survey a measurement scale is appropriate, whereas in an experimental design the measurement is inherent in the design itself. The majority of extant studies utilise experimental designs, using various 'laboratory' and 'real life' conditions, enabling absolute measures of multitasking performance. One suitable measurement scale is identified (Konig & Waller, 2010), for use in a cross-sectional survey design. An alternative measure, identified in observational work, is the measure of elapsed time, which is used to investigate task switching in various combinations of multitasking behaviour.

To conclude the measurement debate, following the review of the empirical measurement of polychronicity and multitasking found in the extant literature, it is evident that measures of the two concepts take different forms, as one would expect with measures of preference (to behave) and actual behaviour respectively. Measures of polychronicity include several measurement scales, none of which are deemed suitable. Thus, it is concluded that the development of a new scale is required to measure the concept of polychronicity. For multitasking, the measurement scale developed by Konig and Waller (2010) provides a reliable and valid measure of multitasking. Other identified measures of multitasking include: measures of time and measures inherent in experimental designs which are found to be used in the majority of studies of multitasking behaviour and its outcomes. Consideration of the concepts of polychronicity and multitasking suggests that polychronicity may be important as an individual trait characteristic. However, the focal element of interest is the behavioural concept of multitasking, for which an underpinning theoretical foundation is now considered.

2.3 Threaded cognition

Multitasking necessarily involves many different types and combinations of activities, which are categorised with respect to the length of task switching time in the 'multitasking continuum' (Salvucci & Taatgen, 2011), as discussed earlier. As such, multitasking is a task oriented concept; hence, in order to fully develop this debate, there is a need to consider its underpinning theory. The review of extant literature in relation to the measures of multitasking reveals that the dominant underpinning perspective is cognitive psychology, which forms a backdrop for empirical studies attempting to explain the outcomes of multitasking. In particular, the recently developed theory of threaded cognition (Salvucci & Taatgen, 2008), is identified by this author as a convincing underpinning theory for the study of multitasking behaviour.

An overview of threaded cognition is provided by means of an analogy. In attempting to illustrate the processes involved in multitasking; to introduce their theory of threaded cognition, Salvucci and Taatgen (2011) use the analogy of a cook in a kitchen preparing three dishes (a fish entrée, a pasta dish and a cake) at the same time. This analogy is effective in demonstrating that in this particular multitasking activity; resources (oven, stove, mixer), a process (baking, boiling, mixing) and some ingredients of a dish (fish, pasta, flour) are all necessary for completing the task. The cook is responsible for the preparation of the food and carrying out the various steps required in the cooking process to produce the food. The cook is the central resource, managing conflicts which arise in this cooking scenario, such as the need to use the oven at different temperatures during the same time period. Salvucci and Taatgen (2011, p.28) liken their theory of threaded cognition to an attempt to 'formalise the cook and the entire mind's kitchen'. In the cooking analogy, the completion of each dish requires a sequence of stages, and therefore each dish can be thought of as an individual process that could be made on its own, or combined to be made alongside the other dishes. In a similar way, the mind can work on its own 'dishes', which represent the task goals that individuals strive to attain. In most task goals, such as talking and driving, they could (as with the

cooking of the three dishes) be achieved independently or as a combined (multitasking) activity. Hence, each of these behaviours represents an independent thread and these threads form the basis of multitasking behaviour.

Threaded cognition is developed within the framework of the ACT-R (Adaptive Control of Thought-Rational) cognitive architecture (Anderson, Bothell, Byrne, Douglass, Lebiere & Qin, 2004). The main notion of ACT-R is that human cognition can be understood by considering it as a set of 'modules' or 'resources', which correspond to the main cognitive, perceptual and motor resources of humans. The theory of threaded cognition attempts to explain the interference between two or more tasks in a multitasking situation. Following the development of the theory of threaded cognition, with the intention of demonstrating their theory, Salvucci and Taatgen (2008) used computer simulations to test simple laboratory type tasks; for example, dual choice tasks (reading and dictation) and more complex multitasking situations relating to a 'real life' situation (driver distraction). These simulations were considered to be successful by the authors', who concluded that threaded cognition is able to be used to explain and predict multitasking behaviour for these situations. Further, it is suggested that the theory could be applied to multitasking activities in other domains. As a recently developed theory, threaded cognition has not yet been extensively adopted, but is used as a theoretical framework in two recently published studies of multitasking (Wang et al., 2012; Rosen et al., 2013).

As an underpinning theory for the empirical study of multitasking behaviour, threaded cognition (Salvucci & Taatgen, 2008) is convincing. It is adaptable in relation to its ability to incorporate a range of multitasking situations, as categorised by the multitasking continuum. In addition, threaded cognition is not allied to a specific domain; hence it can be used in various settings, from air traffic control to multiple media use behaviour. Another advantage of the theoretical perspective of threaded cognition, is that it is developed for multitasking situations involving two or more tasks, thus enabling it to be applied to 'real life' situations. Accordingly, the proposed research directions

pursue the explanation of the phenomenon of multiple media use, using threaded cognition as the underpinning theory.

3.0 Conclusions and proposed research directions

The review of extant literature on multiple media use establishes that empirical research in this area is very limited, with the majority of studies conducted relatively recently, hence leading to the conclusion that this is an emerging research area in its early stages of development. Studies to date comprise empirical work confirming the prevalence of multiple media use, identifying various multiple media use combinations, particularly among the 'Net Generation'. However, this body of study is predominantly descriptive in nature, making no attempt to explain the underlying reasons for this phenomenon. Additionally, studies universally suffer from the limitation that only two-way combinations of media are investigated. Collectively, the limited nature and scope of empirical work in the area of multiple media use, together with the fact that it is an emerging area of research, indicate that there is a potential research opportunity in this domain. In particular, the finding that existing empirical work lacks theoretical underpinning and makes no attempt to explain the phenomenon of multiple media use, provides an opportunity to advance knowledge in this domain, framing the study of media multitasking behaviour within the theory of threaded cognition, as is discussed later in relation to future research directions. The review of extant literature on multiple media use identifies the concepts of polychronicity and multitasking to be of importance in attempting to understand the phenomenon.

In relation to the concept of polychronicity, the literature highlights a lack of consensus with respect to extant definitions. However, the recent recommendation by Konig and Waller (2010) that 'the term polychronicity should only be used to describe the preference for doing several things at a time' (p.175), and that multitasking should be reserved for the behavioural aspect is accepted, and has provided long awaited clarification in this research domain. There is no dispute regarding the definition of multitasking. The definition adopted for use in future empirical work is; the ability to

complete ‘multiple task goals in the same time period by engaging in frequent switches between individual tasks’. Consensus is reached that multitasking includes the presence of multiple individual tasks, although there is debate in the literature regarding the length of time involved between task switches. The ‘multitasking continuum’ resolves this issue to a large extent, by providing a mechanism by which to categorise various types of multitasking behaviour. In reconciling the concepts of polychronicity and multitasking, this review confirms that these concepts are related; polychronicity should be regarded as the preference to behave and multitasking should be referred to as the actual behaviour.

It is evident from the literature that the lack of consensus regarding the definition is reflected in the measurement of polychronicity. A number of measurement scales are identified, but none are considered acceptable, suggesting the need for the development of a new scale for future work in this domain. The measurement of multitasking is dependent on the chosen research design, which is found to be more diverse than for polychronicity. Since the predominant research method identified in the literature for the measurement of multitasking behaviour is experimental design, the measures are inherent in the design of the study, which tends to be specific to the particular multitasking context. However, the recently developed multitasking scale (Konig and Waller, 2010) is recommended as a competent measure by this author, for use in cross-sectional survey work attempting to measure multitasking behaviour.

Following the establishment of a research gap to investigate the phenomenon of multiple media use, four main issues indicating a need for further research arise from the review of literature, each of which is discussed in turn.

(1) Polychronicity is defined as ‘the preference for doing several things at a time’. The preceding evaluation of measures of polychronicity concludes that although a definition is now agreed upon, the extant measures are not acceptable for work in this domain. Thus, the first proposed research direction concerns the development and testing of a new scale for the measurement of

polychronicity. It is expected that the new scale will be multidimensional, accounting for the various dimensions of the concept of polychronicity.

(2) In reconciling the concepts of polychronicity and multitasking, this review confirms that these concepts are related; polychronicity should be regarded as the preference to behave and multitasking should be referred to as the actual behaviour. Hence, it follows that the preference to behave should precede the behaviour itself, leading to the suggestion of a probable relationship between the two concepts. The second proposed research direction is therefore to investigate the relationship between polychronicity and multitasking. However, in order to investigate this relationship, it is necessary to understand and explain the phenomenon of multiple media use, which is the aim of the third research direction, discussed below.

(3) Multitasking is identified as a task oriented concept. In the preceding discussion, the theory of threaded cognition is confirmed by this author as a convincing theoretical foundation for the study of multitasking behaviour. As a theoretical underpinning for the study of multiple media use, threaded cognition is considered apt, due to its adaptability in relation to a range of multitasking activities along the multitasking continuum, as required by various multiple media use situations. The theory can incorporate multitasking combinations of two or more, considered important by this author in relation to multiple media use. Two recent studies, discussed above, have successfully used threaded cognition to underpin their empirical work, confirming the application of the theory. In addition, threaded cognition is not domain specific and can be applied to almost any domain, including multiple media use. Consequently, the third proposed research direction is to pursue the explanation of the multiple media use phenomenon, by examining the mechanics of multiple media use, using threaded cognition as the underpinning theory.

(4) Previous experimental studies, for example in an academic environment, have identified a reduction in performance as a result of multitasking behaviour. Consequently, it is considered important to examine the outcomes of multiple media use. The fourth proposed research direction

suggests that the outcomes of media multitasking should be examined. Outcomes such as recall, recognition and memory performance should be investigated, as these have important consequences for the understanding of the phenomenon of multiple media use. In addition, these outcomes have implications for the media planning function and the advertising industry.

4.0 References

Arndt, A., Arnold, T.J. & Landry, T.D. (2006). The effects of polychronic-orientation upon retail employee satisfaction and turnover. *Journal of Retailing, 82* (4), 319–330.

Anderson, J.R., Bothell, D., Byrne, M.D. Douglass, S., Lebiere, C. & Qin, Y. (2004). An integrated theory of the mind. *Psychological Review*, *111*, 1036-1060.

Bardhi, F., Rohm. A.J. & Sultan, F. (2010). Tuning in and tuning out: media multitasking among young consumers. *Journal of Consumer Behaviour, 9*, 316-332.

Benbunan-Fich, R., Adler, R.F., & Mavlanova, T. (2011). Measuring multitasking behaviour with activity-based metrics. *ACM Transactions on Computer-Human Interaction, 18* (2), 1-22.

Bluedorn, A.C. (1998). An interview with anthropologist Edward T Hall. *Journal of Management Enquiry, 7*, (2), 109-116.

Bluedorn, A.C., Kallaith, T.J., Strube, M.J. & Martin, G.D. (1999). Polychronicity and the Inventory of Polychronic Values (IPV) The development of an instrument to measure a fundamental dimension of organisational culture. *Journal of Managerial Psychology*, *14* (3/4), 205-230.

Bluedorn, A.C., Kaufman, C.F. & Lane, P.M. (1992). How many things do you like to do at once? An introduction to monochronic and polychronic time. *Academy of Management Executive*, 6 (4), 17-26.

Brasel, S.A. & Gips, J. (2011). Media Multitasking Behaviour: Concurrent Television and Computer Usage. *Cyber Psychology, Behaviour and Social Networking*, *14* (9), 527-534.

Carlin, I. (2005) A Vision of Media Planning in 2010, *Journal of Advertising Research*, (3), 2-4.

Carrier, L.M., Cheever, N.A., Rosen, L.D. Benitez, S. & Chang, J. (2009). Multitasking across generations: Multitasking choices and difficulty ratings in three generations of Americans. *Computers in Human Behaviour, 25*, 483-489.

Conte, J.M. & Gintoft, J.N. (2005). Polychronicity, Big Five Personality Dimensions, and Sales Performance. *Human Performance, 18* (4), 427-444.

Conte, J.M., Rizzuto, T.E. & Steiner, D.D. (1999). A construct-oriented analysis of individual-level polychronicity. *Journal of managerial Psychology, 14* (3/4), 269-287.

Daugherty, T., Gangadharbatla, H. & Kim, K. (2005). Polychronic Media Consumption: Exploring Attitudes towards Simultaneous Media Usage. *American Academy of Advertising Conference Proceedings* 74-76.

Delbridge, K.A. (2000). *Individual differences in multitasking ability: Exploring a nomological network.* Unpublished Doctoral dissertation, Mitchigan State University , East Lansing.

Denyer, D. & Tranfield, D. (2006). Using qualitative research synthesis to build an actionable knowledge base. *Management Decision, 44* (2), 213-227.

Enoch, G. & Johnson, K. (2010). Cracking the Cross-Media Code. How to use Single-Source Measures to examine Media Cannibalisation and Convergence. *Journal of Advertising Research, June*, 125-136.

Foehr, U.G. (2006). Media Multitasking Among American Youth: Prevalence, predictors and pairings. Available at: http://faculty.ithaca.edu/jpowers/docs/SenSemReadings/mediamultitasking.pdf (Accessed 26 June 2013)

Goonetilleke, S.R. & Luximan, Y. (2010). The relationship between monochronicity, polychronicity and individual characteristics. *Behaviour & Information Technology, 29* (2) 187-198.

Graham, R.J. (1981). The role of perception of time in consumer research. *Journal of Consumer Research, 7*, 335-42.

Hall, E.T. (1959). *The Silent Language*. Garden City, NY: Doubleday.

Hall, E.T. (1983). *The Dance of Life*. New York, NY: Anchor Books.

Hall, E.T. & Hall, M.R. (1990). *Understanding Cultural Differences*. Yarmouth, ME: Intercultural Press.

Hecht, T.D. & Allen, N.J. (2005). Exploring links between polychronicity and well-being from the perspective of person-job fit. *Organizational Behavior and Human Decision Processes, 98,* 155-178.

Hambrick, D.Z., Oswald, F.L., Darowski, E.S., Rench, T.A. & Brou, R. (2010). Predictors of Multitasking Performance in a Synthetic Work Paradigm. *Applied Cognitive Psychology, 24,* 1149-1167.

Hembrooke, H. & Gay, G. (2003). The Laptop and the Lecture: The Effects of Multitasking in Learning Environments. *Journal of Computing in Higher Education, 15* (1), 46-64.

Ishizaka, K., Marshall, S.P. & Conte, J.M. (2001). Individual Differences in Attentional Strategies in Multitasking Situations. *Human Performance, 14* (4), 339-358.

Jeong, S-H. & Fishbein, M. (2007). Predictors of Multitasking with Media: Media Factors and Audience Factors. *Media Psychology, 10* (3), 364-384.

Jeong, S-H. & Hwang, Y. (2012). Does Multitasking Increase or Decrease Persuasion? Effects of Multitasking on Comprehension and Counterarguing. *Journal of Communication, 62,* 571-587.

Kahnemann, D. (1973). *Attention and Effort.* Englewood Cliffs, NJ: Prentice Hall.

Kaufman, C.F., Lane, J.D. & Lindquist, J.D. (1991). Exploring more than 24 hours a day: A preliminary investigation of polychronic time use. *Journal of Consumer Research, 18*, 392-401.

Kaufman-Scarborough, C. F. & Lindquist, J.D. (1999). The Polychronic Attitude Index: Refinement and preliminary consumer marketplace applications. *American Marketing Association. Conference Proceedings, 10*, 151-157.

Kaufman-Scarborough, C. & Lindquist, J.D. (1999). Time management and polychronicity: comparisons, contrasts and insights for the workplace. *Journal of Managerial Psychology, 14* (3/4), 288-310.

König, C.J., Buhner, M., & Murling, G. (2005). Working memory, fluid intelligence and attention are predictors of multitasking performance, but polychronicity and extraversion are not. *Human Performance, 18*, 241-266.

König, C.J., Oberarcher, L. & Kleinmann, M. (2010). Personal and Situational Determinants of Multitasking at Work. *Journal of Personnel Psychology, 9* (2), 99-103.

König, C.J. & Waller, M.J. (2010). Time for reflection: A critical examination of polychronicity. *Human Performance, 23*, 173-190.

Lee, J. Lin, L. & Robertson, T. (2012). The impact of media multitasking on learning. *Learning Media and Technology, 37* (1), 94-104.

Lee, W., Tan, T.M.K. & Hameed, S.S. (2006). Polychronicity, the Internet, and the Mass Media: A Singapore Study. *Journal of Computer-Mediated Communication, 11*, 300-316.

Lin, L. (2009). Breadth-Biased versus Focused Cognitive Control in Media Multitasking Behaviours. *Proceedings of the National Academy of Sciences of the United States of America, 106,* (37) 15521-15522.

Lin, L., Lee, J. & Robertson, T. (2011). Reading While Watching Video: The Effect of Video Content on Reading Comprehension and Media Multitasking Ability. *Journal of Educational Computing Research, 45* (2), 183-201.

Lindquist, J.D. & Kaufman-Scarborough, C. (2007). The Polychronic-Monochronic Tendency Model PMTS scale development and validation. *Time and Society, 16* (2/3), 253-285.

Lindquist, J.D. & Kaufman-Scarborough, C. (2004). Polychronic tendency analysis: a new approach to understanding women's shopping behaviours. *Journal of Consumer Marketing, 21*, (5), 332-342.

Lui, K.F.H. & Wong, A. C.-N. (2012). Does media multitasking always hurt? A positive correlation between multitasking and multisensory integration. *Psychonomic Bulletin Review, 19*, 647-653.

Nelson-Field, K. & Riebe, E. (2011). The impact of media fragmentation on audience targeting: An empirical generalisation approach. *Journal of Marketing Communications, 17* (1), 51-67.

Ophir, E., Nass. C. & Wagner, A.D. (2009). Cognitive control in media multitaskers. *Proceedings of the National Academy of Sciences of the Unites States of America, 106*, (37), 15583-15587.

Oswald, F.L. Hambrick, D.Z. & Jones, L.A. (2007) Keeping all the plates spinning: Understanding and predicting multitasking performance. In D.H Jonassen (Ed.) *Learning to solve complex scientific problems.*

Palmer, D.K. & Schoorman, F.D. (1999). Unpacking the multiple aspects of time in polychronicity. *Journal of Managerial* Psychology, 14, 323-345.

Persing, L. (1999). Managing in polychronic times: Exploring individual creativity and performance in intellectually intensive venues. *Journal of Mangerial Psychology, 14* (5), 358-373.

Pilotta, J.J., Shultz, D., Drenik, G. & Rist, P. (2004). Simultaneous media usage: a critical consumer orientation to media planning. *Journal of Consumer Behaviour, 3* (3), 285-292.

Pilotta, J.J. & Shultz, D. (2005). Simultaneous Media Experience and Synesthesia. *Journal of Advertising* Research, 45 (1), 19-26.

Poposki, E.M. & Oswald, F.L. (2010). The Multitasking Preference Inventory: Toward an improved measure of individual differences in polychronicity. *Human Performance, 23*, 247-264.

Rosen, L.D., Carrier, L.M. & Cheever, N.A. (2013). Facebook and texting made me do it: Media induced task switching while studying. *Computers in Human Behaviour, 29*, 948-958.

Salvucci, D.D. & Taatgen, N.A. (2008). Threaded Cognition: An integrated theory of concurrent multitasking. *Psychological Review, 115*, 101-130.

Salvucci, D.D. & Taatgen, N.A. (2011). *The Multitasking Mind.* New York: Oxford University Press.

Sanderson, K. R. (2012). Time Orientation in Organizations: Polychronicity and Multitasking. *FIU Electronic Theses and Dissertations,* Paper 738, http://digitalcommons.fiu.edu/etd/738

Schell, K.L. & Conte, J.M. (2007). Associations among polychronicity, goal orientation, error orientation. *Personality, and Individual Differences, 44*, 288-298.

Slocombe, T.E. & Bluedorn, A.C. (1999). Organisational behaviour implications of the congruence between preferred polychronicity and experienced work-unit polychronicity. *Journal of organizational* behavior, 20 (1), 75-99.

Spink, A. (2004). Multitasking information behaviour and information task switching: an exploratory study. *Journal of Documentation, 60* (4), 336-351.

Srivastava, J. (2013). Media multitasking performance: Role of message relevance and formatting cues in online environments. *Computers in Human Behaviour, 29* (3), 888-895.

Voorveld, H.A.M. (2011). Media multitasking and the effectiveness of combining online and radio advertising. *Computers in Human* Behaviour, 27, 2200-2206.

Wang, Z., David, P., Srivastava, J., Powers, S., Brady, C., D'Angelo, J. & Moreland, J. (2012). Behavioural Performance and visual attention in communication multitasking: A comparison between instant messaging and online voice chat. *Computers in Human Behaviour, 28*, 968-975.

Wang, Z. & Tchernev, J.M. (2012). The "Myth" of Media Multitasking: Reciprocal Dynamics of Media Multitasking, Personal Needs, and Gratifications. *Journal of Communication, 62* (1), 39-56.

Webster, J.G. & Ksiazek, T.B. (2012). The Dynamics of Audience Fragmentation: Public Attention in an Age of Digital Media. *Journal of Communication, 62* (3), 493-593.

Zhang, Y., Goonetilleke, R.S., Plocher, T., & Liang S.M. (2005). Time related behaviour in multitasking situations. *International Journal of Human-Computer Studies, 62*, 425–455.

Zigmond, D. & Stipp, H. (2010). Assessing a New Advertising Effect. *Journal of Advertising Research*, *50*, (2), 162-168.

Zigmond, D. & Stipp, H. (2011). Multitaskers may be advertisers' best audience. *Harvard Business Review*, January-February, 32-33.

Table 1: Multiple media use: a summary of definitions

Definition	Reference/date	Emphasis
'polychronic media consumption is defined as the preference or actual consumption of two or more media simultaneously during a given time period'	Daugherty et al. (2005)	Preference or behaviour Multiple media Given time period
'media multitasking is engaging in more than one media activity at a time' 'media multitasking is the practice of participating in media exposures to two or more commercial media forms at a single point in time, including traditional, online, social and entertainment media'	Foehr (2006) Bardhi Rohm & Sultan, (2010) Wang, Srivastava, Powers, Brady, D'Angelo, J. & Moreland (2012)	 Multiple media Same time
'simultaneous media usage is multiple exposures to various media forms at a single point in time for the same media consumer'	Pilotta Shultz, Drenik, & Rist (2004); Pilotta & Shultz (2005)	Multiple media Same time
'an audience behaviour that combines media use with another non-media activity'	Jeong &Fishbein (2007)	Multitasking with media (same time implied)

Table 2: A chronological summary of the definitions of polychronicity and multitasking

Definition: Polychronicity	Reference	Emphasis
'doing more than one thing at a time' (polychronicity)	Hall (1959)	Behaviour, Culture
'a cultural variable involving two different ways of organising activities: monochronically-involvement in events one at a time; and polychronically-involvement in two or more events at the same time'	Hall (1983)	Culture Behaviour
'a polychronic culture is a culture in which people value and hence practice, engaging in several activities and events at the same time'	Hall (1998)	Behaviour and Value
(monochronicity) 'a preference for doing one thing at a time, rather than doing two or more things simultaneously' (polychronicity)	Bluedorn, Kaufman & Lane (1992)	Preference
'the extent to which people in a culture: (1) prefer to be engaged in two or more tasks or events simultaneously; and (2) believe their preference is the best way to do things'	Bluedorn, Kallaith, Strube & Martin (1999)	Culture Preference and Belief
Three components: time use preference; time tangibility and context. Time use preference: 'the extent to which people within a culture prefer to do things one at a time or in coordination. Time tangibility: 'the extent to which time is perceived within a culture as being quantifiable. Context: high and low context cultures (Hall, 1998)	Palmer & Schoorman (1999)	Culture Preference Time
'the preference for doing several things at a time'	Konig & Waller (2010)	Preference
Polychronicity is a non-cognitive variable reflecting 'an individual's preference for shifting attention among ongoing tasks, rather than focussing on one task until completion and then switching to another task'	Poposki & Ozwald (2010)	Preference
Definition : Multitasking	**Reference**	**Emphasis**
Ability to complete 'multiple task goals in the same general time period by engaging in frequent switches between individual tasks'	Delbridge (2000)	Time period Task switching (frequent)
'performing multiple tasks where performance requires a conscious shifting from one task to another, and performance on multiple tasks, with shifts in attention, must occur over a short time span'	Oswald, Hambrick & Jones (2007)	Short time period Task switching

Table 3: A chronological summary of polychronic measurement scales used in empirical studies

Authors	Title of study	Measurement scale used
Conte, Rizzuto & Steiner (1999)	A construct-oriented analysis of individual-level polychronicity	Bluedorn (1999) IPV (adapted use – 10 item scale)
Kaufman-Scarborough & Lindquist (1999)	The Polychronic Attitude Index: Refinement and preliminary consumer marketplace applications	Kaufman, Lane & Lindquist (1991) PAI (adapted use – item 3 removed to form MPAI3)
Palmer & Schoorman (1999)	Unpacking the multiple aspects of time in polychronicity	Bluedorn (1999) IPV
Slocombe ,Bluedorn & Allen (1999)	Organisational behaviour implications of the congruence between preferred polychronicity and experienced work-unit polychronicity	Bluedorn (1999) IPV
Lindquist & Kaufman-Scarborough (2004)	Polychronic tendency analysis: a new approach to understanding women's shopping behaviours	Kaufman, Lane & Lindquist (1991) Originally based on PAI – PMTS (2007) development scale used
Conte & Gintoft (2005)	Polychronicity, Big Five Personality Dimensions, and Sales Performance	Bluedorn (1999) IPV (adapted use – 6 item scale)
Hecht & Allen (2005)	Exploring links between polychronicity and well-being from the perspective of person-job fit	Bluedorn (1999) IPV (adapted use – 5 item scale plus 3 additional items)
Zhang, Goonetilleke, Plocher & Liang (2005)	Time related behaviour in multitasking situations	Kaufman, Lane & Lindquist (1991) PAI(adapted use – item 3 removed to form MPAI3)
Arndt, Arnold & Landry (2006)	The effects of polychronic-orientation upon retail employee satisfaction and turnover	Bluedorn (1999) IPV (adapted use – 4 item scale)
Lee, Tan & Hameed (2006)	Polychronicity, the Internet, and the Mass Media: A Singapore Study	Kaufman, Lane & Lindquist (1991) PAI
Schell & Conte (2008)	Associations among polychronicity, goal orientation, error orientation	Bluedorn (1999) IPV
Goonetilleke & Luximan (2010)	The relationship between monochronicity, polychronicity and individual characteristics	Kaufman, Lane & Lindquist (1991) PAI (adapted use – item 3 removed to form MPAI3 combined with IPV)

IPV (Inventory of Polychronic Values); PAI (Polychronic Attitude Index); MPAI3 (Modified PAI – item 3 removed)

Table 4: A summary of methods used in empirical studies on multitasking

Method	Topic of study	Empirical studies
Proprietary secondary data	Media behaviour	Pilotta & Shultz (2004); Pilotta & Shultz (2005); Zigmond and Stipp (2010)
Observation	Information seeking behaviour Media behaviour	Spink (2005) Braesel & Gips (2011)
Experimental	Effects of multitasking in education; organisations	For example: Hembrooke & Gay (2003); Hambrick et al. (2010); Konig, Buhner & Murling (2005)
Cross-sectional surveys	Multitasking behaviour	Ophir, Nass & Wagner (2009); Lui & Wong (2012); Rosen, Carrier & Cheever (2013); Konig, Oberacher & Kleinmann (2010)
Longitudinal (diary panel)	Media behaviour	Wang & Tchernev (2012)