

Technology Adoption and Journalistic Role Conceptions: A Conceptual Review and Operational Model

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Abstract

The transformative potential of new interactive technology in journalism and specifically in broadcasting, where it touches on participatory programming is widely acknowledged in recent scholarship. Yet, there is no consensus on the implications of interactive technology adoption on the highly contentious profession of journalism and how technology is related to journalistic values and role conceptions. While studies of journalistic role conceptions rest on the assumption that conceptions are assessed from enacted journalistic contents (cf. Mellado and Lagos, 2014; Tandoc et al 2013; Ngomba, 2010), at best, relationships between technology and role conceptions, as perceived rather than as enacted in journalists' content is equally worthy of assessment. Following a review of literature on this purview, this article seeks to contribute to the ongoing discussion on new media and journalism and suggests an integrated conceptual model developed from extant theories on technology adoption and journalistic role conceptions in order to answer some pertinent questions. The proposed generic model could then be used to explore journalists' dispositions to interactive technology and how different roles may be engendered in the digital era.

Introduction

There is no doubt we are in the midst of a new and exciting age in media history. Technology – digital and mobile - is at the heart of this excitement. Media practitioners have been including these technologies in their day to day routine, thereby exploring and exploiting them

without explicit institutional and organisational guidelines. Although journalism is said to be vulnerable to technology (Pavlik, 2001), it is now commonly agreed that the media world and journalism as a profession is in a state of flux. Rapid and dramatic changes in the available technologies – software, internet and mobile telecoms are affecting its practice and

product (Spyridou, et al 2013). Consequently, there has been loss of power to break news, waning credibility, and the profession's unsustainability in the face of tech-threats coming from citizen and online journalism. Some claim the profession is lacking in its societal role in the age of network society (Scott, 2005; Broesma, 2010; Picard, 2011). Particularly, there is a growing concern in relation to the changing business models, changing roles, up-skilling and multiskilling as emerging practices in mediasphere (Saltzis and Dickson, 2008; Witschge and Nygren, 2009). Others suggest that the professional culture of journalism is becoming more diverse, open and dynamic when journalists turn to be identified as "media workers" with a "portfolio worklife" based on flexibility and multi-skilling (Deuze, 2007). Witschge and Nygren (2009) observe that many of the claims about the way in which new media technologies change the nature of the news production process and the way journalists respond to these changes are yet to be empirically covered. However, numerous studies have responded to these trends by focusing on how new information and communication technologies is diffusing in media sphere and how they are affecting the processes of media content production, delivery and reception (Garrison, 2001; Domingo, 2008). A notable area of interest consists in understanding how adoption of new media has affected the mediasphere resulting in media convergence and new participatory culture (Jenkins, 2006; Bonini and Monclus, 2015).

Given this background, we propose a conceptual model which integrates technology adoption models and journalistic role conceptions to further understand how technology as

a factor is conceived by news workers. This is important in two ways: first we have an alternative means of comprehending role conceptions in journalism which does not look at journalistic output to determine role. Secondly our effort repositions adoption studies in media studies from the acceptance and diffusion paradigm to a unified perspective in view of the weaknesses in extant theories on adoption and the dynamic nature of digital technology which makes adoption of technology a moving target in mediasphere. Our approach is an analytic review of theories of adoption in relation to role theory and journalistic role conceptions. With a summative model in unified theory of acceptance and use, core IT usage model and four-grid journalistic role conceptions, our proposed model seeks to explore, in future studies, perceived relatedness in technology and journalistic role performance.

Operationalising and Integrating Technology Adoption Models for Journalistic Role Conceptions Study

The most common dimension for studying technology adoption in media studies is usually by singling out adoption models such as TAM or DIT or through the Uses and Gratification Theory where descriptive studies of technology in media are favoured. However, recent scholarship with focus on the sociology of newsrooms under the rubric of 'convergence' studies (Jenkins, 2006: 16) has provided new theorisations. But outside the scope of media studies explanations that "routinely explain over 40 percent of the variance in individual intention to use technology" have been made (Sun and Bhartacajee, 2014:1). An in-depth review of

extant theories and models of technology acceptance, such as the Technology Acceptance Model-TAM (Davis 1986), Motivational Model-MM (Davis *et al* 1992) and Diffusion of Innovation Theory-DIT (Rogers, 1995), as well as how these theories have contributed to studies on the sociology of newswork, including the more recent studies on media convergence, is therefore critical to our task in this paper.

Leading the pool of studies on technology adoption is the Technology Acceptance Model (TAM). Drawn from two social-psychological theories (i.e. Theory of Reasoned Action – TRA, Fishbein and Ajzen, 1975) and Theory of Planned Behaviour (TPB, Ajzen and Fishbein, 1980; Ajzen, 1991) the theory explores the factors that affect behavioural intention to use information or computer systems, and suggests a causal linkage between two key variables – *perceived usefulness* and *perceived ease of use* – and users' attitudes, behavioural intentions, and actual system adoption and use (Davis, 1986). Due to the elasticity of this model, it has attracted usage across a range of disciplines, media studies inclusive.

Diffusion and Innovation Theory (DIT) is another theoretical dimension peculiar to studies on technology adoption. Diffusion, in this theory, is defined as the process through which an innovation is communicated and spread over time to members of a community. The theory provides a basis for understanding the 'one stage process' of who will use a technology and how quickly it will diffuse through a population up till the point when prospective users become exhausted (Rogers 1995). However, the actual manner of use of the technology is largely disregarded in

diffusion studies and thus provides only a basis for studies and little in-depth understanding as to the actual appropriation of a technology (Fichman, 2000; Oni, 2013). The seven core constructs of the model are: *relative advantage* [the degree of positive differential to previous system], *ease of use* [the degree perceived difficulty], *image* [degree to which the innovation is status conferral in a social system], *visibility* [degree of innovation's ubiquity], *compatibility* [the degree of conformity with already known value system and user experience], *results demonstrability* [the extent of innovation's physical usefulness], and lastly, *voluntariness of use* [i.e. the extent to which usage of a technology comes from user's free will rather than compulsion] (Venkatesh *et al* 2007).

Other notable theories or models of technology adoption are the Motivational Model (Davis *et al* 1992), Social Cognitive Model (Bandura, 1996) (Compeau and Higgins, 1995) and the Model of Personal Computer Utilisation. Davis *et al* (1992) Motivational Model (MM) suggests two main constructs as determinants for technology adoption; these are *extrinsic* and *intrinsic* motivations. These determinants indicate that technology adoption is typically psychologically and in relation to the user's perceived target goal (instrumental) and/or for no apparent reason or just to satisfy the 'other' (Venkatesh *et al*, 2003). On the other hand, the social cognitive model harps more on 'performance during usage' rather than intention to use. But in keeping with the spirit of predicting individual acceptance, its five constructs are considered quite important. These are: *outcome expectations* (on performance), *outcome expectations* (on personal

ground), *self-efficacy* (i.e. judgment of one's ability to use a technology efficaciously), *affect* (i.e. personal liking to use a technology), and *anxiety* (eagerness when it comes to using a technology). The predictive validity of the model when it comes to intention and usage makes it an outstanding technology adoption model (see Venkatesh *et al* 2003).

A not-too-popular Model of Personal Computer Utilization (MPCU) modified by Thompson *et al* (1991) from Triandis' (1977) theory of human behavior is also considered suitable to predict individual acceptance and use of a range of information technologies (Venkatesh *et al* 2003: 430). The core constructs of this model are: *role fitness*, *complexity* (or perceived ease of use), *long term pay-off* (or benefits), *affect toward use* (which can be positive as in status conferral or negative as in stigma), and *social factors* (interpreted as subjective cultural nuances which impact on the individual's agreement to accept/reject usage). Venkatesh *et al* (2003) note that MPCU is a hybrid model which taps from Rogers and Shoemaker's (1971) study for their "perceived ease of use" (or "degree of complexity") determinant. Literature also shows another hybrid theory in Taylor and Todd's (1995) combination of TAM and TPB. They were able to add 'perceived usefulness' to TPB's 3 determinants of *attitude toward behaviour*, *subjective norm*, and *perceived behavioural control* constructs. Attitude toward behavior is operationalised as an individual's positive or negative feelings about performing the target behaviour, subjective norm is the person's perception that the 'other' has an influence on their choice to act or not act in certain ways, perceived usefulness, on the other hand, is the extent to which a person believes that using a

particular system would enhance his or her job performance.

By performing a systematic test review, operational definitions and theoretical examination of concepts underlining the key competing theories and models of technology adoption, a group of scholars in information system have come up with a summary model for technology adoption in what is termed the Unified Theory of Acceptance and Use of Technology (UTAUT) Venkatesh *et al* (2003). They identified five key limitations of the previous models and proffered seven constructs that were discovered to be relevant as direct determinants of intention or usage of technology in organisational setting. Of these constructs, four prime constructs were distilled as the most significant determinants of user acceptance and usage behaviour, these are: *performance expectancy*, *effort expectancy*, *social influence*, and *facilitating conditions*. They were able to jettison *attitude toward using technology*, *self-efficacy* (judgment of one's ability to use a technology to accomplish a particular task), and *anxiety* (anxious or emotional reactions when it comes to using a technology) as *not*/too direct determinants of intention to use technology. Venkatesh *et al* (2003) then moderate these determinants using demographics (gender, age, experience and voluntariness).

In the theoretical mapping leading to Unified Theory of Acceptance and Use (UTAUT), Venkatesh *et al* (2003) operationally defined "attitude toward technology use" as an individual's overall affective reaction to using a system. The authors' use the four constructs which align with the existing models to situate the scope of adoption within "individual intention to use technology", these are: *attitude toward behaviour* (deduced from

TRA, TPB/DTPB, C-TAM-TPB), *intrinsic motivation* (deduced from MM), *affect toward use* (deduced from MPCU) and *affect* (deduced from SCT). These constructs have been found to be the fore bearers of an individual's liking, enjoyment, joy, and pleasure associated with technology use (Venkatesh *et al* 2003: 455).

While both TAM and DIT have been drawn upon by scholars of sociology of newswork under rubrics such as newsroom technology adoption and/or convergence (Forte Duhe, 2004; Greenwood and Reinardy, 2011; Garrison, 2001), various other research, on newsroom technology adoption with focus on convergence tradition, have reported divergent views on changing practices in newswork, and attitudinal change or perceptions of newsworkers on technology adoption (Singer, 2004). Hence, convergence and adoption of technology are integral aspects of innovation in newsrooms to which the scholars have fruitfully used DIT and TAM (Garrison, 2001; Singer, 2004). Recently, media researchers have proposed approaches based on the social construction of technology (Boczkowski, 2004; Cottle and Ashton, 1999) with Latour's actor network theory also being preferred (ANT) to better explore the process of technology adoption in journalism (e.g. Spyridou, *et al* 2013). With these sociological approaches are different models which typify and characterise technology use in newsrooms in terms of the degree of integration of technology and the resultant journalistic practices, attitude and roles (Gordon, 2003; Dailey *et al* 2005; Singer, 2004, 2006; Dupagne and Garrison, 2006; Garcial Aviles *et al* 2009; Mico, *et al* 2014). Their modelling efforts revealed the diversity of solutions that different media companies are currently adopting to

address technological innovations in newsrooms, even as the concept remains emerging and 'a moving target for scholars' (Infotendencias Group, 2012; Quandt and Singer, 2009).

Introducing the Core IT Usage Model to UTAUT

The need to incorporate technological characteristics and move beyond contexts of IT usage upon which technology adoption models are based spurred the recent discussions on technology adoption (Sun and Bhattacharjee, 2014). The blurring line in technology usages informed the new argument that it is vital to separate the purpose and nature of technology artifacts before assessing their usage pattern. Technologies, they say, should be seen as evolving systems (or tools) within a network of agents in a dynamic and social system (Sun and Bhattacharjee, 2014: 2). By also summing up the initial determinants, for instance, into their *Utilitarian Value* (which relates to performance/effort expectancy and perceived usefulness/ease of use constructs), *Hedonic Value* (which relates to the perceived enjoyment aspect of intention to use technology), *Communication Value* (that endears usage to social ties), and *Technology Complexity* (which also relates to perceived behavioural control) a new model with focus on technology as an artefact is launched.

However, in order to increase the explanatory power of UTAUT another recent contribution has focused on culture. Restricting the operational definition of culture to Hofstede's (2001) idea of culture as patterns of thinking, feeling and potential acting, which have been learned throughout a lifetime, and which are likely to be used repeatedly and

unlikely (or difficult) to be changed by the individual (Nistor *et al* 2014: 38). These scholars argued that cultural patterns are shared within a social environment such as nation, ethnicity or profession. Whilst equating culture with national culture and/or geographical location, they proposed that timely stable patterns of thinking, feeling and potential acting may strongly vary within national border (Nistor *et al* 2014: 38). Their assumption is that the examination of ‘professional cultures’ within ‘national cultures’ is possible since individual education and professional practice confer certain advantages in a given domain, hence unlikely usage intention and behaviour may not be the same. The study of professional cultures could therefore be used for the cross cultural and cross domain validation of technology acceptance theories. Fourteen hypotheses were raised to integrate this operationalised culture into the UTAUT, which they moderated with *masculinity, uncertainty avoidance, individualism, power distance index* and *long-term orientation* (Nistor *et al* 2014: 39). The aspect of ‘masculinity’ which refers to the distribution of emotional roles between sexes is assimilated into our conceptual model in the manner of Venkatesh and Zhang (2010) since other dimension of Hofstede culture are linked to individual personality traits.

The extended UTAUT model containing ‘computer anxiety’ as an additional variable in technology use intention offered evidence for the validity of UTAUT across national and professional cultures. There exists a subtle influence of technology use intention on the actual use behaviour, which could be based on the ubiquity of the examined technology and participants’ extensive related knowledge and skills (Nistor *et al* 2014: 48; Venkatesh *et al*

2012). If we extend these new submissions to our task in this study, we could then work with the assumption that ubiquity of technology and its extensive adoption by journalists based on their related knowledge/skills and across national and professional cultures may influence their intention and use behaviour and may as well shape their role conceptions. Our questions would be that: Are journalists with certain role conceptions prone to adopt interactive technology owing to its utilitarian, hedonic, and communicative values? how significantly different are these perceptions within and across professional and national cultures? What contextual determinants: social norms (in institutional, organisational and work practices), demography, and status are capable of influencing journalistic role conceptions through perceptions on adoption? We present our conceptual model on the bases of these problems.

Operationalisation

The conceptual model presented here represents an insight into how journalists negotiate conflicting normative and contextual expectations in their adoption of technology. As earlier mentioned, this effort is borne out of the traditional technology usage research’s taking a “proxy view” of technology (Orlikowski and Iacono, 2001) and focusing on user perceptions of a technology while heavily drawing upon social psychological constructs (such as perceived usefulness and ease of use) as the core basis for understanding user behaviour. But with the recent dimension which advocate for an “ensemble view”, where, on the one hand, technologies are seen as evolving systems (or tools) within a network of conditions that defines terms of use in a

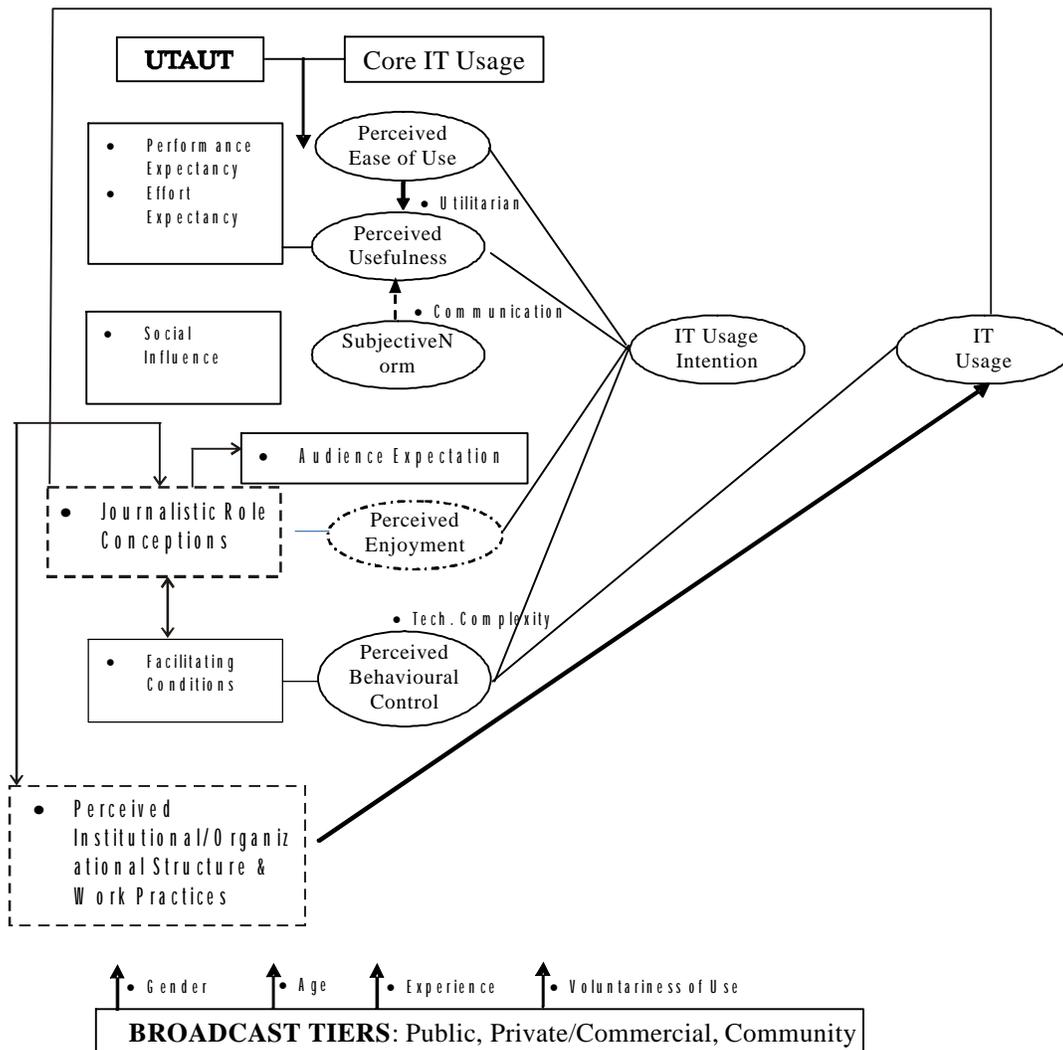


Figure 1: Conceptual Model

dynamic and social system. And on the other hand, where professional culture – operationalised in gender, skills, ideas and practices – acts as impedance to the potential impact of technology in journalism. It suffices to look beyond the extant models of adoption for one that will cater for the specific intricacies of journalists’ adoption of technology beyond the confines of sociology of news work paradigms.

Hence, a synchronised model is derived to formulate a framework to assess the prime determinants of *subjective norm* or *social influence*, the *facilitating conditions* or *perceived behavioural control* aspects of the extant models while incorporating provisos of the journalistic role conceptions.

Literature on journalistic role conceptions informs on those extrinsic and intrinsic

influences that shape professional role conceptions in journalism. In fact, Bourdieu (1998) argues that in order to understand and grasp the explanatory mechanism of journalistic practice one has to understand that journalism as a social institution has very little autonomy, subject to a whole series of pressures. Tandoc *et al* (2013) provide a vivid background into these influences by echoing Shoemaker and Vos (2009) who explicitly linked gatekeeping studies to field theory. Five levels of influences, ranging from individual to the social system level, were theorised. They identified professional role conceptions as an individual-level influence, arguing for instance that “the gatekeeper’s ideas about what his or her job entails can also affect gatekeeping choices” (Shoemaker and Vos, 2009: 47). Journalistic role conceptions originate from one’s perception of what society and the sub-groups within it, such as one’s news organisation, expect. But these expectations integrate into role conceptions once they are individually internalised. Therefore, individual journalists might vary in their role conceptions. Apart from “organisational and societal factors” identified in some of the several studies on journalistic role conceptions (Weaver, 1996; Wei and Weaver, 1996; Schultz, 2002), a journalist’s professional conduct is also reported to be influenced by his ideas, attitudes, professional norms and perception of the audience (Donsbach, 2004). Investigating what causes journalists to make the choices they do may come from self-reported survey which caters for journalists’ perceptions as well as that of the audience in lieu of content analytic approach which have been used in earlier research (see Tandoc *et al* 2013).

The relationships between the propositions

and variables mentioned in the extant models of technology adoption are factored into the conceptual model to reflect these influences. For instance, social influence and subjective norms are directly related as they are considered under the individual journalist’s ideologies or predispositions that shape professional roles. As a member within a society it could be assumed that individual conceptions will be shaped by certain external yet contextual factors. Apart from occupationally related (social) influences, we assume that another important factor that shape technology adoption and role conception in journalism may result from audience expectations rather than institutional/organisational structures and work practices. This is a ground shifting assumption which is hinged on the notion of identity in role placement rather than role enactment. Role according to literature is played when the enacted role is successfully situated within the same frame of experience, backgrounds and/or expectations of the *other* (Oni, 2013). In journalism, the ‘other’ is the audience community. Against this backdrop, audience expectations could count as a prime determinant of journalists’ intention to use technology and actual use behaviour. While this is directly related to the subjective norm’s extrinsic factor, it is worthy of consideration, albeit independently, in view of the participatory culture afforded by interactive technology in contemporary networked media society.

Another important dimension evident in the proposed conceptual model is to look at the extent to which factors derived from the different value dimensions of technology can affect intention to use and use behaviour and to also see whether role conceptions could be

shaped by them. Our proposition here is strongly influenced by the blurring line between individual and organisational uses of technology and how technology serve different purposes in our personal, social, and work lives. Against this backdrop, we draw on Sun and Bhatercherjee's (2014) sub-categorisation of technological values that sum up the three prominent reasons for contemporary technology usage. These are the *utilitarian*, *communication*, and *hedonic* values.

Prior research has viewed technology as a primarily utilitarian tool – that which enhances performance and productivity in the workplace. This dimension is reflected in the “perceived usefulness” and “performance expectancy” constructs or the “outcome expectancy” and “extrinsic motivation” of the TAM, UTAUT motivation model (see Davis *et al* 1992) and the “relative advantage” of DIT.

As reported in the literature on the subject, users' perceived usefulness is the strongest and most consistent predictor of technology usage intentions in the workplace. However, with the unprecedented affordances of new media this value may not be easily realised in some of the technology being adopted or appropriated for journalistic routines. Instead, some technologies which serve hedonic (entertainment) and communication purposes, such as enhancing users' enjoyment or their interactional or collaborative purposes share work-goal related and utilitarian value. In view of this blurriness we assume that the effect of perceived usefulness on technology usage by journalists and for journalistic roles will be varied: stronger for technology which they consider high in utility and lower for those which they consider as less utilitarian. Journalists' perception of technology as hedonic or fun-

related, we assume, will significantly affect their adoption and role conceptions.

Communication-oriented technologies such as www, email, chat-IRC, social network (e.g. Facebook, blogs, Twitter, podcasting, Youtube, Web radio as in Spyridou *et al* 2013: 83) are those that facilitate communication, cooperation, and collaboration among group of users (Sun and Bhattacharjee, 2014: 4). Such technologies may be used in work settings to enhance productivity or decision making, or in personal social settings (e.g. social networking like Facebook, Twitter, etc.) for entertainment value. Communication-oriented technologies are expected to motivate journalists' intentions and behaviours, they are likely to be the strongest determinant of adoption. However, with reports on journalists' unyielding tendencies to relinquish known journalistic traditions and practices, the effect of communication-oriented technologies on role conceptions will be stronger for information dissemination or the normative role rather than investigative, societal growth, and populist mobilisation irrespective of their utilitarian or hedonic value (see Oni 2014 for insights on prime motivations in broadcasting).

Because of the opportunity for overt influence coming either from social groups or institutional (market) competition, the effect of communication-oriented technologies are expected to be a salient factor. In DIT studies, influence from 'referent groups' have been demonstrated as prime drivers of new innovation adoption among later adopters. But in profit over investment mediasphere and government-owned public broadcasting, the extent to which market rivalry, operationalised as part of the social influence cum subjective norm, affects adoption and shapes role

conceptions can be ascertained through this conceptual model. While communication from prior adopters helps persuade potential users of the utilitarian value of communication-oriented technology through perceived usefulness, social influence that may result from media competing for relevance and market rating rather than the instrumentality of the technology could be another major determinant of adoption and shaper of journalistic role conceptions. This aspect of subjective norm on usage intention can be appropriated against Kelman's (1958) tripartite propositions on the socio-cognitive process of attitude change: from compliance stage to identification stage and finally to internalisation stage (cf. Sun and Bhattacharjee, 2014).

Based on the forgoing, the resultant matrix could be used to factor the utilitarian, hedonic and communication values of technologies employed in journalism and to understand the predominant role conceptions across broadcast tiers or media platforms when technology is involved. These are expected to be moderated by variables such as gender, age, experience, dichotomous job-roles (news worker versus news manager) and, perhaps, voluntariness of use.

Conclusion

Technology is one of the factors shaping how journalism is practiced. The scholarly interest in this phenomenon has grown substantially since the past two decades with the growth of digital interactive technologies and their user friendliness. However, the impact of adoption, that is, the intention to use and the actual use behaviour among journalists – a community of professionals with universal ideals but context-specific praxis as informed by national

culture and/or organisational differences, has not been significantly explored. In this article, we have concerned ourselves with how adoption of technology could influence certain journalistic roles by distilling from theories and models of technology adoption a generic model that may help explore journalists' role conceptions. The exercise is therefore based on a broad examination of technology use with focus on how this affects journalists' role perceptions and professional values. From technology use point of view, we hope to assess with this model journalists' subjective understandings of their practised roles, as these roles are bound to the individual journalists' self-awareness and self-image.

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