Meta-Methodological Assumptions in Digital Communication:

A Cohesive Andragogical Research Competence

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To attain a cohesive research framework, a media researcher must initially prioritize the philosophical standpoint guiding the investigation. To address the distinct nature of media and andragogy research, a taxonomy of knowledge will determine the complex lens on the methods to be considered regarding the interdisciplinary nature of the research.

Andragogy, described as the art and science of adult learning, plays a crucial role in shaping the educational landscape, especially in the realm of digital media consumption. Malcolm Knowles, a significant figure in andragogy theory, proposed that adults possess unique learning needs and preferences distinct from those of children. In the context of lifelong learning, digital media has emerged as a potent tool that profoundly impacts the educational experiences of adults. The incorporation of digital media into andragogical practices enables the creation of personalized and adaptable learning environments, catering to the diverse needs and learning styles of adult learners (Merriam, Caffarella, & Baumgartner, 2007).

The prevalence of digital media has revolutionized the conventional teacher-centred approach, ushering in a learner-centred paradigm that provides adults with opportunities for self-directed learning, collaboration, and knowledge construction (Dabbagh & Kitsantas, 2012). Online courses, webinars, and interactive multimedia on digital platforms facilitate and support the andragogical principles of learner autonomy and relevance. Adults can interact with educational content at their own pace, accessing an array of resources tailored to their specific interests and professional aspirations (Gibbons & Rogers, 2019).

Nevertheless, it is crucial to recognize the challenges and considerations associated with the integration of digital media in andragogical settings. Issues such as digital literacy, information overload, and the necessity for critical thinking skills become pivotal in navigating the expansive realm of online information (Hartshorne,

Friedman, & Anderson, 2018). Hence, educators and instructional designers must meticulously curate digital content and provide guidance to adult learners in developing the skills necessary to discern credible information and navigate the digital learning environment effectively.

The interdependence of andragogy and digital media consumption signifies a transformative shift in adult education. The integration of digital media aligns with andragogy's principles by empowering adults with the autonomy to direct their learning, fostering collaboration, and promoting relevance. As technology advances, educators must remain vigilant in addressing the challenges posed by digital media to ensure that adult learners harness its potential for lifelong learning and professional development (Marrie H, 2022).

A Pedagogical Scientific Investigation

Exploring key concepts in scientific theory and clarifying their relevance to the andragogical media research and their interactions can enrich discussions on the methodological evaluation of cohesive pedagogical studies within mediated virtual communication. According to Kuhn (1962), any scientific investigation should be rooted in a framework representing a viewpoint or a collection of interconnected perceptions of the world. The philosophical perspective or common views embraced by a discipline constitute a theory, impacting empirical paradigms (Sale et al., 2002). The term 'ontology,' derived from the Greek words 'onto' (being) and 'logia' (science or theory), involves the study of truth or the objects constituting reality, influencing empirical evidences and relationships between fundamental categories of being (Guba & Lincoln, 1989). Ontological positions determine the mechanism of knowledge, leading to epistemology, derived from the Greek 'episteme' (knowledge). Epistemology, as discussed by Slevitch (2011) and Guba, Lincoln, and Denzin (1994), addresses questions about truth, actual expertise, and the investigator's interaction

with perceived knowledge.

Philosophical Foundations: Ontology, Epistemology, and Methodology

Ontological positions shape empirical paradigms, influencing the study of truth and the objects constituting reality (Guba & Lincoln, 1989). Epistemology, rooted in the Greek 'episteme' (knowledge), explores questions about truth, actual expertise, and the nature of the investigator's interaction with known phenomena (Slevitch, 2011). The interplay of ontology, epistemology, and methodology underscores the philosophical foundation of scientific investigation (Slevitch, 2011).

Methodology, a theoretical standpoint, organizes how knowledge is carried out, specifying approaches, tools, and procedures in a scientific investigation (Guba, 1990; Smith & Heshusius, 1986). "Understanding Methodology in Scientific Investigation" Methodology, a theoretical standpoint, organizes how knowledge is carried out, specifying approaches, tools, practices, or procedures in a scientific investigation (Guba, 1990; Smith & Heshusius, 1986). It determines the best-suited methods based on philosophical positions, guiding the research investigation (Slevitch, 2011). Scientific investigation is a collection of philosophical assumptions about truth, ontology, and knowledge, serving as a guide for methodology andresearch methods (Slevitch, 2011; Guba et al., 1994). The interconnectedness of these philosophical standpoints defines the research process (Slevitch, 2011).

Philosophical Interconnectedness in Scientific Investigation

The interconnection of ontology, epistemology, and methodology defines the research process, with ontology shaping epistemology, which, in turn, determines methodology and specifies applied methods for research investigation (Slevitch, 2011; Guba et al., 1994).

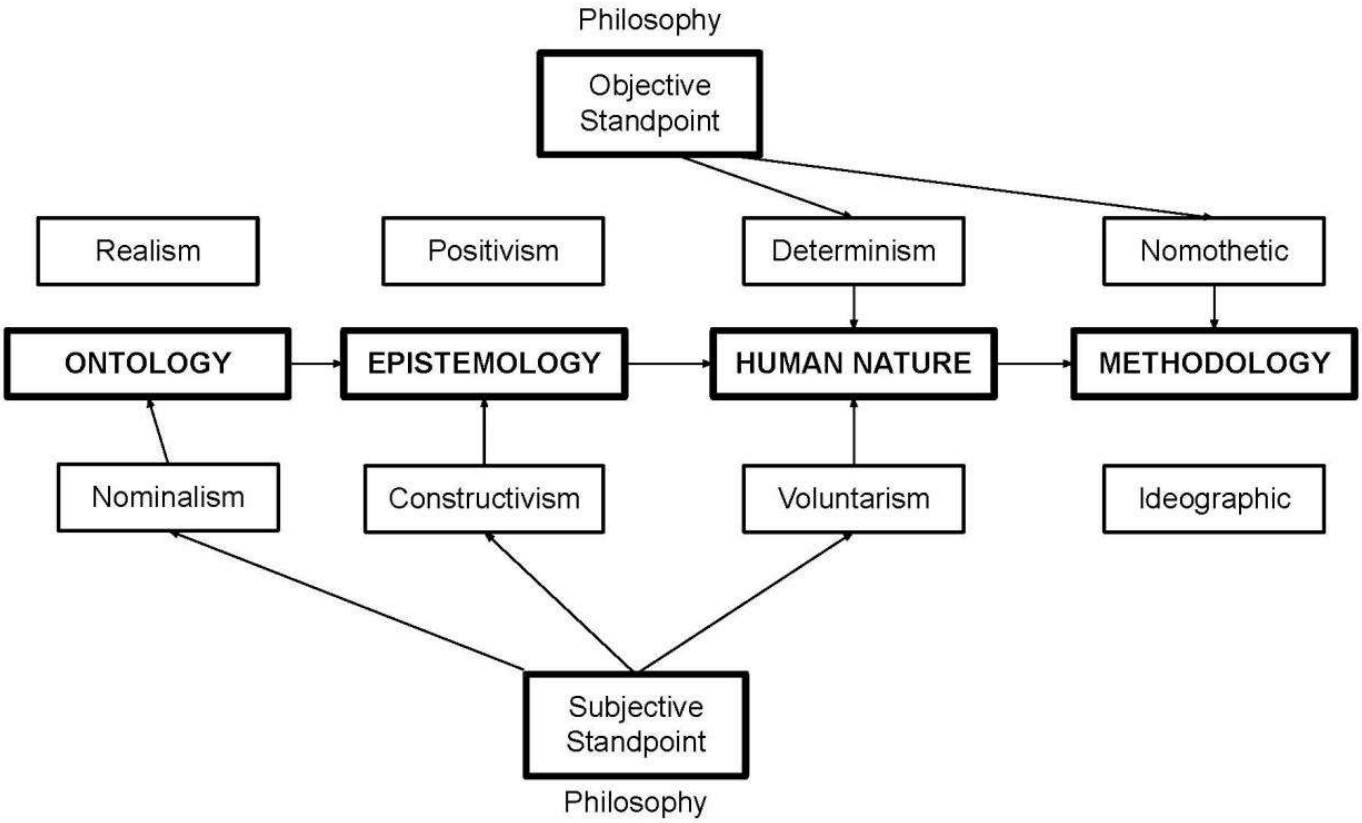
Digital Media and Androgogy: An Interdisciplinary Approach

New media and learning research, an interdisciplinary technique, underpins an epistemological perspective on learning engagement knowledge and an ontological positioning of media research within the social sciences. Cohen et al.'s research on education delves into the philosophical approaches' taxonomy, distinguishing relationships between ontology, epistemology, determinism, and methodology (2000). Their work is heavily influenced by Burrell and Morgan's classic study on taxonomy (Dean, 2015).

Philosophical Perspectives in Education Research

Cohen et al. (2000) extensively explored the philosophical approaches' taxonomy, delineating relationships between ontology, epistemology, determinism, and methodology in education research. Their work is influenced by Burrell and Morgan's classic study on taxonomy (Dean, 2015).

An adaptation of the Meta-theoretical Taxonomy assumptions of knowledge on New Media and Andragogy



Based on the above reasoning, this paper will consider a mixed-method research enquiry. The structure will be an exploratory sequential design, hence the study in media and andragogy may commence with semi-structured qualitative interviews to create primary key themes of data, which are then to be further reviewed in a survey. Lastly, the study must present all data gathered from the two methods against the primary data, the literature review and the conceptual framework for validation. This method complements the exploratory aim of the research by allowing a deeper level of understanding rather than what a one-step method might provide.

Mixed-methods approach in a media and andragogy study

The three fundamental designs of mixed-method analysis are convergent parallel, explanatory sequential, and exploratory-sequential design strategies (Snelson, 2016).

Convergent Parallel Design

A convergent parallel design involves the simultaneous implementation of separate quantitative and qualitative research methods, with findings converging at the end. This approach collaborates qualitative and quantitative components to address research problems, employing various tools for validation (Creswell & Plano Clark, 2011).

Methodological triangulation, a form of convergent parallel design, combines qualitative and quantitative data collection and analysis (Snelson, 2016). In a media study, this design may analyze social media video content alongside metadata obtained from analysis software, such as Spider software (Casselman & Heinrich, 2011).

Explanatory Sequential Design

The explanatory sequential design places the quantitative element before the qualitative element, enhancing the interpretation of data during qualitative analysis (Creswell & Plano Clark, 2011). This design is useful for clarifying quantitative findings, such as using focus groups to understand survey results (Debatin et al., 2009). Media research often utilizes explanatory sequential design through surveys and questionnaires, followed by qualitative exploration (Creswell, 2014).

Exploratory Sequential Design

In the exploratory sequential design, qualitative methods precede quantitative methods, with the latter validating the former's analysis (Creswell, 2014). This design involves qualitative interviews followed by quantitative assessments in the media research context (Strano & Queen, 2012). It allows for an in-depth understanding of

trends on digital platforms, such as studying image tagging themes qualitatively before surveying actual language learners (Kumar et al., 2019).

Significance of MMR in Studying New Media Trends

Mixed-method research (MMR) combines quantitative and qualitative data to provide comprehensive interpretations. MMR is valuable for understanding research topics in depth, answering research questions effectively, and combining complementary strengths of different data sets (Creswell, 2014). MMR can be structured in various ways, including mixed research, multiple methods, and ethnographic analysis, focusing on questions requiring context and inference from real-world examples (Johnson et al., 2007).

Method One: Designing Semi-Structured Interviews for Media Research

Semi-structured interviews, frequently employed in Mixed Methods Research (MMR), utilize pre-determined open-ended questions to allow for depth and flexibility in exploration (Gubrium et al., 2012). The duration of these interviews, ranging from one to one and a half hours, aims to comprehend participants' perspectives on language apps. Recording preferences, whether video or audio, are determined by ethical considerations and participant comfort, with note-taking employed to complement recordings for comprehensive data capture (Mero-Jaffe, 2011).

Population and Sampling

The Pertinence of Convenience Sampling in New Media Research Objectives This study necessitates a sample that authentically digital users, emphasizing diversification in terms of age, gender, and occupation to address gaps identified in related literature (Cohen et al., 2007). Despite the absence of a clear-cut answer for determining sample size, purposive sampling in web-based surveys is recommended. Cohen et al. (2007) suggest an overestimation of the sample size to account for potential limitations.

Purposive Sampling

While commonly believed to be aimed at generating 'knowledge-dense' cases, purposive sampling in mixed-methods implementation studies lacks clear guidelines, especially with multiple objectives (Patton, 2002). Comparatively, Kemper et al. (2003) highlight the focus on consistency in purposive sampling and variance in probability sampling.

A purposive sampling strategy aligning with the breadth of quantitative probability sampling is recommended to achieve equilibrium between quality, trustworthiness, and internal validity. Purposive sampling, an effective qualitative analysis method, identifies information-rich cases to optimize data use with limited resources (Patton, 2002). Challenges in deciding the most effective purposive sampling technique arise due to uncertainty in the range of variance within the population. Incremental sampling and resampling ensure theoretical saturation, vital for achieving qualitative goals (Miles & Huberman, 1994).

Research evidence suggests that a purposive sampling strategy can effectively generate quantitative data, while probability sampling can generate qualitative data (Palinkas et al., 2013). Purposive sampling's potential in mixed-methods data collection lies in its ability to transcend current methodological approaches to address complex research questions innovatively.

Convenience Sampling

Convenience sampling, a type of non-probability purposive sampling, selects samples based on convenience for research aims (Bornstein et al., 2013; Jager et al., 2017). Unlike probability sampling, convenience sampling lacks equal-chance selection, relying on subjective judgment for sample inclusion. Although imbalances and biases may result from convenience sampling , it remains useful in generating preliminary hypotheses from reported attitudes and opinions, contributing rigor to mixed-method studies.

Method Two:

Designing quantitative survey for a media research

In media-related research, the selection of an effective and systematic data collection approach is imperative. The choice of data collection method is influenced by factors such as available resources, characteristics of the study population, and the sensitivity of the study topic (Regmi et al., 2016).

Traditional methods, such as telephone interviews, face-to-face interviews, and hard-copy questionnaires, have been widely used but may yield only moderately qualitative results, considering the financial implications associated with specific research endeavors. With the expansive reach of the Internet, however, web-based formats and electronic delivery of questionnaires have become viable alternatives, utilizing platforms like email, websites, and social media (Regmi et al., 2017).

Sample selection is crucial in ensuring that participants represent the larger population under study. Random sampling or a combination of random and non-random sampling methods can be employed, with random sampling being conducive to quantitative data collection facilitated by online randomizers (Kelley et al., 2003). For qualitative data collection, non-random sampling is more appropriate. Surveys,

involving standardized interviews or questionnaires, are a common method in survey research to gather data on phenomena, people, preferences, behaviours, and thoughts, making them suitable for descriptive, explanatory, or exploratory research in media studies. Quantitative surveys, being objective and dependent on variables, can measure data effectively, making them suitable for extrapolating findings to the broader population in studies involving learners (Regmi et al., 2017).

However, surveys have limitations, including their inability to provide historical context and potential bias due to survey non-response (Bell, 1993). In this study, the use of multiple methods may address these limitations. The survey design process involves developing a sampling plan and procedures for obtaining population estimates. In this study, a purposive sampling web-based survey compromises the sampling plan, but the administration methods, such as web-based surveys, are specified (Regmi et al., 2016).

The survey's accuracy and response rate are determined during the development of population estimate procedures. Participant feedback on survey design procedures, including variables to be measured, estimation requirements, reliability and validity standards, and relevance, is sought. Ethical considerations, including informed consent, privacy, confidentiality, the right to omit items, and withdrawal rights, are integral to the survey design (see the Consent Form and Participant Information Sheet in the Appendix). A pilot study is conducted post-survey design to assess question order, question legitimacy, content comprehensiveness, clarity of instructions, data compatibility, participants' ability to skip sections, and technological feasibility (Regmi et al., 2016).

Applicability of web-based questionnaires

Leveraging web-based questionnaires presents a current solution to counteract the decline in respondent participation observed in research studies. The utilization of

online platforms like Survey Monkey, Google Docs, direct mail, and various social media channels can address the drawbacks associated with traditional survey methods, particularly the challenge of low participation rates.

Presently, engaging in a web-based survey is considered a more cost-effective alternative than participating in traditional research studies, allowing researchers to efficiently collect extensive participant data in a shorter timeframe (Regmi et al., 2016). Web-based surveys prove valuable in gathering information on sensitive topics and reaching out to vulnerable populations, such as minorities, immigrants, or communities with diverse sexual orientations (Regmi et al., 2016). In the current global pandemic scenario, the advantages of web-based surveys are being fully harnessed, benefiting from the widespread digital connectivity of individuals while adhering to physical distancing measures.

Both commercial board members and academic researchers have played a role in steering away from traditional paper-and-pencil research methods (Scheuermann & Björnsson, 2009). Web-based surveys are categorized into probability and non-probability types, with the researcher's discretion influencing non-probability sampling, often termed as 'convenience sampling.' This approach involves participants self-selecting or opting in through volunteer panels on email lists for non-probability surveys. The decreasing costs of technology infrastructure make web-based services more economically feasible, enabling comprehensive qualitative and quantitative data collection. The streamlined transfer of written data to technological applications ensures efficient and error-minimized collection of large datasets (Heiervang & Goodman, 2009). The expeditious data collection capability of web-based surveys is a notable advantage, allowing respondents to complete questionnaires at their own pace within a specified time frame and over multiple sessions. Respondents can skip irrelevant questions, utilize multiple-choice options,

and organize responses to open-ended qualitative questions systematically within the automated interfaces of web-based questionnaires (Regmi et al., 2016).

Strategic design elements can encourage increased response rates, such as preventing progression to the next question until the current one is answered (Heiervang & Goodman, 2009). For sensitive inquiries, rearranging and ranking questions offers flexibility for participants to respond at their convenience (Regmi et al., 2016). Additionally, web-based questionnaires for follow-ups present a more convenient alternative than traditional postal services, with various online channels facilitating the creation of user-friendly survey formats. Despite acknowledged limitations, such as individuals' preferences for social media platforms or limited favorability towards web-based interfaces, supplemental paper and phone surveys can complement web-approaches.

Conclusion

Epistemology plays a crucial role in shaping the research taxonomy and methodology employed in the interdisciplinary examination of andragogy and digital media within the context of mixed methods research (MMR). The importance of epistemology lies in its investigation of the essence and extent of knowledge, influencing the researcher's position on what constitutes valid and valuable information in this multifaceted domain.

In Media and Andragogy MMR, where quantitative and qualitative methodologies seamlessly merge, considerations related to epistemology become even more vital. For example, comprehending the epistemological foundations assists researchers in navigating the intricacies of amalgamating diverse data sources, ensuring that both the quantitative and qualitative aspects contribute significantly to the overall comprehension of andragogy and digital media. This interdisciplinary aspect necessitates a research taxonomy and an epistemological framework that

accommodates diverse ways of understanding and acknowledges the dynamic interplay between theory and practice.

Advancements in the mixed-methods movement, as eloquently expressed by Sechrest and Sidana (1995), can address certain challenges associated with singular methodologies. A mixed-methods investigation incorporates the strengths inherent in both quantitative and qualitative approaches within the same framework.

Notably, researchers engaging in mixed methods are more inclined to select methodologies based on their specific research inquiries, prioritizing the research questions over predetermined biases about which research paradigm should prevail in social science research. Johnson and Onwuegbuzie (2004), in their book "The time for mixed methods study has arrived," present mixed methods as an opportunity to cultivate mutual responsibility in the pursuit of quality and transparency. This opportunity involves bridging the divide between quantitative and qualitative research methods.

Ultimately, within the realm of andragogy and digital media, MMR emerges as an indispensable methodological instrument, enabling a thorough investigation that goes beyond traditional disciplinary confines. The interdisciplinary approach recognizes the intricate links between theories of adult learning (andragogy) and the evolving dynamics of digital media. As emphasized by Smith, Moustakas, and Downing (2019), MMR is particularly suited for examining intricate phenomena where diverse perspectives are imperative. By integrating quantitative evaluations and qualitative insights, MMR facilitates a nuanced exploration of how adults interact with and learn through digital media platforms. The interdisciplinary essence of andragogy and digital media necessitates a research framework that embraces various perspectives, methods, and a comprehensive research taxonomy, highlighting the significance of MMR in offering a holistic understanding of this dynamic intersection.

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