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Critically evaluate a range of methodological approaches, research designs and research methods appropriate to gather data from complex work-based settings. Apply due consideration to research ethics and issues of insider research.

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Introduction

The aim of writing this assignment is to gain an overview and understanding of philosophical approaches, research designs and methods. By learning about these aspects of research, I will begin to associate voice-related work-based settings to the appropriate type of data collection. I will compare, analyse, model and consider different design frameworks – this would allow me to think more about the ideal structure for my future research. I am primary school music teacher and vocal coach. I try to find a balance between these two roles which leads me to explore function and health of the voice. I am interested especially in voice therapies and tailored vocal exercises. Contributing to resolve voice-balance for group music teachers motivates me to gain a better insight into all available tools and rules of conducting the research process. “Research is an art of scientific investigation” (Kabir, 2016, p. 2). Writing this assignment will help to explore my ontological position and open possibilities for ways of discovering the knowledge. “It is important to develop a deeper understanding of the assumptions underpinning a range of educational traditions and their relationships to educational research in general” (Otoo, 2020, p. 67). Gaining the paradigmatic worldview should narrow the technicalities of the research process and facilitate an accurate outcome (Davies and Fischer, 2018). I expect the understanding of insider research position and ethics applications will build my initial skills for upcoming credible research and steer away possible bias.

Epistemology

Epistemology is a branch of philosophy (Horrigan, 2007) that tries to understand how we gain the knowledge (Steup and Neta, 2020) and under what conditions (Goldman and Beddor, 2008). “This business of raising and resolving questions” (Rescher, 2003, p. 12) would not exist without the inquisitiveness and doubt of man’s intuition: “How do we know that we know” used to be an underestimated question (Dew and Foreman, 2020). Now it seems to justify or avert human's beliefs. Epistemology has its evolution. Early theories talk about what is knowledge and how we gain it (Allen and Varga, 2007), whereas modern epistemology sorts and organises verifiably acquired knowledge, its function and cognitive process (Alavi and Leidner, 2001). This is very beneficial for the research activity. Sol and Heng (2022) argue, that it is crucial to choose a tailored epistemological approach and David and Alex Bennet (2009) talk about levels of knowledge helping us to make “decisions, systems and applications” (p. 10) throughout the research process.

One of epistemological concerns is a successful cognitive (Steup and Neta, 2020) process with the result of knowledge. There might be different paths of gaining it. Bennet A. and Bennet D. (2007) discuss different categories of knowledge, depending on type of cognitive process. According to its attributes, he recognises e.g. strategic, action, research and meta knowledge. Russel investigated knowledge gained from sensory experience and its relevance to the modern science (in Setup and Neta, 2020) and Sternberg and Horvath (1999) mention so called tacit knowledge, which is a skill knowledge gained by repeated cognitive process. I assume singing falls under these types of cognitive processes with a result of the skill knowledge. I was curious about the relationships

between the epistemology and singing activity. According to the researched literature, epistemologically, singing has cultural and methodological meaning (vocal methodologies). For example, Hoffman (1979) compares epistemology in music to knowledge about culture: "Musical knowledge is based on the same epistemology which underlines and pervades the entire culture" (p. 69). Through singing songs, we can transfer and learn about the culture. Except for the cultural component in songs, Eidsheim and Meizel (2019) mention "knowledge production and meaning-making" (p. 14) generated from performances. They say: "Any of these aspects are already symptoms or evidence of the pressures and affordances that have empowered some vocal expressions and foreclosed on others" (Eidsheim and Meizel, 2019, p.14). It can be evidence of knowledge of vocal production techniques and the development of their methodologies (Forbes, 2024, p. 171) and I would consider matching different voice therapy methodologies tailored to specific groups of occupational voice users for the future research topic of mine.

Ontology

Ontology is "what Aristotle called first philosophy" (Smith, 2003, p. 1). It discusses the existence of reality and covers the basic philosophical question "What is being?" (Sentesy, 2020, p. 3). The concept has developed into many domains (specific concepts) and thus acquired the purpose of a better approach to the researched issue in general (Guarino, Oberle and Staab, 2009). It could study the structure of objects, their properties, events, processes and "relations in every area of reality" (Smith, 2003, p. 1). Since ontology (what) asks question if there is any reality that exists without considering our knowledge (Marsh and Stoker, 2010), it might predetermine the epistemology (how). At the same time, both are clearly defined terms which are not mutually exclusive (Kant, 2014). When conducting the research process, we consider our ontological (subjective) views and link them to objectives (epistemology) to prove the reality. Taking these two theories into account helps narrow down the appropriate methodologies and methods for the research.

Ontology also discusses voice production. Some philosophers dispute it is abstract, while others try to define it by its audible and sonic properties (Dodd, 2008). It is not material, however we can feel it with out material body and this might be a proof of existence (Young, 2011). Meizel and Eidsheim (2019) introduce three ontological assumptions, which would describe necessary parts for my possible future focus due to the considered topic of occupational voice users: "domain of unconscious vocal performance - speaking as producing sounds, which believes that speech as an act is automatic; the domain of material dimensions and mechanism - the physicality of the voice and function, which is important for therapy applications, "for example, it considers how vocal materiality is shaped for the particular vocal outcome and also can redirect vocal intentions beyond the performer's control, as well as the material impact of vocal performance" (p. 24, 25), and last, but not least, auditory/sensory perception" (p. 25), which is a key for the correction because we can verify the outcome of applied vocal exercise or therapies only by aural and sensory perception.

These three areas define my future voice field research of interest - vocal therapies for occupational spoken voice users.

Research Paradigms

A research paradigm allows us as researchers to make decisions about our ontological and epistemological ways of thinking while shaping the methodologies and methods of future study. In order to achieve the best possible results, it is recommended to choose a way of approaching data production according to the requirements of the phenomenon (Rehman and Alharthi, 2016). Due to different stances (Gage, 1989) towards the way of research, and criticism, different paradigms were reasoned. I will introduce positivism/postpositivism, interpretivism/constructivism (Avramidis and Smith, 1999) and pragmatic paradigm (Dammak, 2015; Rahi, 2017).

Positivism paradigm

Because the positivism paradigm studies mainly causal relationships and the principle is, that we cannot interfere by any human factor (Park, Konge and Artino, 2020), it requires a lot of fact approval, objectivity and data focus to be used. "The ontological position of positivists is that of realism, different researchers working in different times and places will converge to the same conclusions about a given phenomenon" (Rehman and Alharthi, 2016, p. 53). Its quantitative methodologies and experimental methods are not ideal for application for complex social phenomena defined by interactions (Nickerson, 2024). This urged establishing post-positivism paradigm which considers and admits the interaction of social phenomena on the knowledge creation. Quasi-experiments mitigated the static observation and allowed employment of data for qualitative studies. I believe that by using the paradigm of positivism would my future voice research possibly acquire quality (less bias), however I am not a healthcare professional with accessible measuring devices. Therefore, I would deduce this information from the reviewed literature or apply post-positivism paradigm which "straddles both the positivist and interpretivism paradigms" (Grix, 2004, p. 86). I would first send out a short survey to learn about voice burden among teachers, which could support my research rationale, and continue with qualitative methodologies such as interviews.

Interpretivism paradigm

The interpretivism paradigm is based on the view that we cannot take away people's knowledge of the world (Saunders, Lewis and Thornhill, 2012). Rather, we should approach the investigation from different perspectives (Alharasheh and Pius, 2020). Only then will it be truly credible research. The paradigm of interpretivism existed in the 19th century, and philosophers such as Guba, Lincoln, and Grix are among its proponents. The main difference between positivism and the interpretivism paradigm is that the participants and the qualitative research (based on the interpretivism paradigm) are co-creators of reality. On the contrary, the reality of the positivism paradigm talks about the reality existing without people having any influence on it - the external truth, which is not

accepting the internal worldview. The inductive analyse of interpretivism paradigm discovers patterns in data so theories could be created (Kivunja and Kuyini, 2017).

Pragmatic paradigm

This paradigm brought peace into disputes between philosophers such as Richards and Grix about the superiority of either positivism or interpretivism paradigm. Its priority is to resolve the research question (Khoo-Lattimore et al., 2019) as effectively as possible without being bound or dependent on any philosophy (Johnson and Onwuegbuzie, 2004), but using all the necessary methods. It is paradigm of mixed methods, which objectively helps to research findings of better applicability.

“Voice science is nowadays a broad topic and the research has advanced, Practice Researchers require a pragmatic approach” (Winter, 2023, p. 2). Schrader (2013) mentions possible disciplinary differences of research such as neurodiversity and pathology, which is just a hint of the developed paths you can take to study the voice. Both quantitative (related to positivism paradigm) and qualitative approaches (related to interpretivism paradigm) are used in vocal production studies, however the paradigm shift should be used wisely. With reasonable flexibility in the selection and use of paradigms, we could achieve better solutions for the voice community (Hacking, 1996).

Methodology

Taking paradigm into account, methodologies form the choice of method to gain the data from our workplaces. “There are three approaches to research: quantitative, qualitative and mixed methods” (Yilmaz, 2013, p. 311).

Quantitative Research Methodology

Quantitative research tests theories (Morgan, 2014). It starts with a specific hypothesis, objective view, further scientifically analysed - tested (Swanson & Holton, 2005). Depending on the way the phenomena are studied, the quantitative research methodology is mainly classified into the following substantial categories. The **experimental** type “isolates the relationships between their defined independent variables and dependent variables” (Swanson & Holton, 2005; cited in Warfield, 2010, p. 29). The **quasi-experimental** type of quantitative research does not gather data from testing theories but from already existing data. The **correlational** type focuses on the scale of the interaction between variables and could be most objectively tested when using the model testing design of the predicted connection (Seeram, 2019). **Descriptive quantitative research** is ideal to combine with the qualitative approach since its variables can be flexible. Despite that, it cannot answer the whole research question. Descriptive research has no feature to explain the causality, therefore supplemental methods need to be applied (Accomando et al., 2022).

In the field of voice, for example, the following specific quantitative approaches are used: measuring voice pressures, acoustics, vibrations of the vocal cords or testing theories. McGlashan et al. (2023) used “deductive thematic analysis of therapy sessions” (p. 1) to test whether there is any

promising useful chance of applying complete vocal technique (CVT) to professional and non-professional voice users with ongoing treatment for muscle tension dysphonia. Coates (2016) worked with a survey to research the most used terminology in vocal pedagogy. Katz (1998) conducted quantitative research on emotional speech, measuring acoustics in different states of emotion, and Döllinger et al. (2011) conducted experiments with voice production analysis. These investigations used a quantitative methodology, and although singing is a personal experience, the measurement and analysis of the data support findings, applications, and help generate new theories.

Qualitative Research Methodology

Sofaer (1999) discusses the two opinions towards qualitative research - there is an attitude towards the methodology, that doubts the reliability, therefore a skilled researcher would be a necessity, whereas some other viewpoints assert that no training, skill or experience history is essential. Both points of view have a common purpose - to minimise bias. Qualitative type of research “tests theories” (Morgan, 2014, p. 9) and “addresses their issues” (Sofaer 1999, p. 1104). It could also generate a hypothesis usually followed by secondary testing. There can be considerable dynamics in social interaction research, so it must be taken into account that uncontrollable changes can occur.

According to the way of cumulating the data, there exists a **narrative type, phenomenology, grounded theory, ethnography, and case study** (Creswell, 2007; cited in Warfield, 2010, p. 30). The **narrative** design gains data through a spoken testimony of events that happened in the past (Overcash, 2003). It is assumed to be verifiable by “considering people’s experiences and connections to the topic” (Muylaert et al., 2014, p. 184). The narrative approach plays an important part in Singing for Health. Abril (2007) revealed symptoms of anxiety beyond singers participants using in-depth interviews. **Phenomenology** focuses on the quality of experience (Connelly, 2010), therefore the process prefers fewer participants (Armour, Rivaux and Bell, 2009). It could have quite a repetitive tendency, this is due to “squeezing out” the most important data. This methodology was a great fit for Paparo’s research (2021) on the effect of the Feldenkrais Method, where he could capture the essence of the connection between singing and somatic experience. On the other hand, **grounded theory** is “a step towards conceptual thinking, rather than empirical testing” (Khan, 2004, p. 224). Generalised conclusions are made inductively, analysed by open and axial coding (extracted data are subsequently associated) (Charmaz, 2006; Glaser and Strauss, 1967). In **ethnography**, the researcher is supposed to become “one of the participants” and experience the environment, behaviour and interactions. He reflects on this while providing the setting of collected material and adhering to ethical issues flowing from this approach (Reeves, Kuper and Hodges, 2008). The triangulation process (comparing and contrasting) seems to be important as “what people say about their behaviour can contrast with their actual actions” (Reeves, Kuper and Hodges, 2008, p. 514). Triangulation allows the researcher to consider the research aims from different perspectives and allows for a more comprehensive investigation. **The case study** brings a complete, full focus on a specific case, its characteristics and analysis (Starman, 2013). I found

Morrissey's (2001) case study about vocal health and the teaching profession a useful example and perspective for a similar question of my interest.

Mixed Methods Research

A mixed methodology was created to address the research question more specifically. (Johnson, Onwuegbuzie and Turner 2007). Gorard and Taylor (2004) emphasize that in order to undergo mixed research, it is necessary to have the skill precisely because of the appropriate combination of paradigms. Considering a combination of paradigms should be the first step (Morgan, 2007), thanks to which mixed methodology can achieve a more validated result than using quantitative or qualitative methodology alone (Creswell and Plano Clark, 2007). It is a complex approach as Robinson et al. (2011) say, therefore it seeks different types of results analysis (Dunning et al., 2008).

According to Swanson and Holton (2005), there is either an option to combine (complementary) or remake (initiation) the results from one method to another, whereas the development strategy has a function of transferring information. There are several strategies involved in the process of mixing quantitative and qualitative methodology. Creswell (2007) states that sequential-explanatory begins with a quantitative phase, while sequential-exploratory with qualitative. Only the sequential-transformational strategy can balance both positions of methodologies in research.

Mixed methodology within the voice field could be applied to voice gender and diversity (behavioural voice therapy), cross-cultural voice investigations, choirs, health and pedagogy. An example of applied mixed methodology in voice studies can be the work of Madoul (2024). He used quantitative and qualitative methods equally to test a new software. He supplemented the measurements of the participants' fundamental voice frequencies with their personal statements. Quantitative results may show a physical change which could be measured but needs to be considered alongside participants self assessment of improvement to determine any change.

Methods

It is quite hard for me to separate this sub-topic since it is interlaced with other parts of the research process. Design strategy frame and navigate the data collection and analysis. Sometimes new problems arise during the collection process and therefore it is recommended to think ahead about the type of analysis, constraints of performing chosen methods, researcher's economic situation, participant's availability or other circumstances. Method is the closest and most concrete tool to answer the research question whereas Pickard (2007) says: "A research method is not defined by the techniques employed within it to harvest data, but the driving purpose of the investigation" (Pickard, 2007, p. 19). It is allowed to try different methods if those pre-selected turn out not working (Dawson, 2002). It is possible to use the same method for both quantitative and qualitative methodology. **Structured interviews**, so called close-ended (Silverman, 2006) because

of the limited options of choice to answer, could easily transform into database data collection of quantitative research. This type of survey would not be ideal for a qualitative type of research, although it may initially support it with findings. “**Unstructured interviews** are sometimes called life history interviews” (Dawson, 2002, p. 27). They might be useful in case study or ethnography, phenomenology, but are not very helpful in organising data due to processing quantity. An open questionnaire is the closest to an interview, when it has the form of check boxes with a place for your own answer. **Quantitative methods** within voice studies are used mostly in clinical case studies and it is becoming more popular to mix scientifically gained data with qualitative approach. Advantage of it is a small sample of participants reflecting and bringing applicable results for a larger scale (Holton and Burnett, 2005). To compare with the **focus groups interviews**, the researcher will not have an access to extra generated material or possible solutions for answering qualitative hypothesis (Dawson, 2002).

The observational technique can also be used in both methodologies. “Observation is the collection of existing data” (Bacon-Shone, 2013, p.39). It is tightly knitted to an activity, which could be performed *directly or indirectly*. An-auto observation is categorised to means of the indirect type and along with the *non-participant observation* type scientific research should be carried out systematically (Ciesielska, Boström and Öhlander 2018). The qualitative participant observation takes several attempts in an organised setting and mindset of the researcher. It is crucial to have a good data management skills system and document regularly. Observation is great to use in a singing studio. It could also be one of methods I might consider peripherally - as a secondary data, when listening to the quality of teacher’s voice while teaching in the class. “The Sensory Ethnography” (Ciesielska, Boström and Öhlander 2018, p. 17) is a new direction of Observational Research and it might be a substantial match for the voice research. As each method, observation has weaknesses too. One of them is a change of behaviour of participant when aware of it during the observation session (Sumeracki, 2018). I would like to concentrate on *purposive sampling* (Scott, 2022) of class music teachers, but there are not so many in my workplace. To have a chance gaining more participants of intended researched question, I might experiment with the *snowball sampling* as well. Snowball sampling technique of gaining participants for the research is based on networking (Parker, Scott and Geddes, 2019).

Ethics and Insider Research

Ethics

Ethics talk about the boundaries of morality (Wiles, 2012; Fouka and Manzorou, 2011). It might seem to be evident to comply with the ethics in research, but it is a complex requirement. Scientists of social science expressed their concern regarding application of regulations (Israel and Hay, 2016) whereas especially qualitative studies used to be susceptible to cross the barriers of what is ought to be allowed. Based on “abuses to research subjects arising from experimentation by Nazi doctors” (Israel and Hay, 2006, p. 9) The Nuremberg Code was enacted. Subsequently, the Bel-

mont Report (1979) determined research “principles of respect for persons, beneficence and justice” (Greaney et al., 2013, p. 4). “A first premise for a researcher is to ‘do no harm’” (Dooley, Moore and Vallejo, 2017, p. 351). Nowadays, institutions and organisations developed own codes of ethics. The ethics form followed by the consent of participants are prerequisite for the research initiation. Oliver (2010) advises to start thinking about ethical issues along with design, methodology and collecting data. Ethics issues are prerequisite of conducting the research and could suspend or modify research (Fouka and Manzorou, 2012).

The informed consent communicates purpose of the study, way of collecting and processing data, freedom of withdrawal, anonymity compliance and results interpretation (University of Wales Trinity Saint David, 2022). Empathetic and encouraging approach is always on point. There are not many ethical issues applying the **questionnaire** except of being exact who distributes and delivers it. The primary data do not have to be stored. When recording the **interview**, structured or even semistructured form might cause interruptions, as interviewees not always feel relaxed when addressing the problem directly. It is best to offer the outcome of this type of research only when officially published (Oliver, 2020).

Insider Research

There are two types of researches (Olson, 1977), insider and outsider. The insider research is often connected to the ethnography (Hermann, 1989) as it is vital for the data collection to observe from the participant’s worldview. It is also part of nearly every sociological or qualitative methodologies (Breen, 2007). Hockey (1993) says there might be an influence on different parts of the research process when using the insider perspective whereas Anderson and Jones’ investigation (2000) on “six dissertations and 50 abstracts conducted by administrator-researchers” show no difference (in Mercer, 2007, p. 14). It is an advantage to learn even more about the topic of interest, contribute to own professional practice, build on knowledge and gather data in environment where you can deepen the trust of the participants (Costley, 2006; Bonner and Tolhurts, 2002 and Unluer, 2012). Despite this, being an insider researcher brings a lot of responsibility. Clarifying and justifying the role of the researcher is the first step towards the credibility of the work. Insider might not be taken so seriously and professionally as the outsider (Hermann, 1989) or “informants might be more willing to bare their souls to a detached outsider than to someone so intimately bound up with the life of the institution” (Dimmock, 2005; in Mercer, 2007, p. 7). Another disadvantage from the experience of an insider researcher is to think that you already know the answer in advance and thus to pre-analyze the entire interpretation of the interviewee (DeLyser, 2001).

Unconscious bias and ethical issues can occur in insider research. For this reason, Adam (2013) lists the following useful self-observations and reflective management tools: Schön’s (1983) reflection in, on and through-action (p. 9), Guba’s (1981) peer-debriefing and transferability or Denzin’s (1978) triangulation (use of many methods to achieve the outcome).

Conclusion

I tried to navigate the components of the research, describe and compare the methods, connect them to the goal of the research questions in voice science, and combine the appropriate components for my future research. My ontological position is supported by the interpretivism paradigm, but in further research I would like to allow the positivism paradigm to add credence. At the same time, experienced researchers claim that it requires the skill to combine, so in addition to considering the ontological position and the possibilities of obtaining the knowledge, I will look for the purpose of a future responsible research question as a second step. It follows that the most important thing is to build a research strategy appropriately. I learned that qualitative research in the social sciences can be unpredictable. Informed research must be supported by an additional strategy to avoid bias, and ethics must also be considered early in the process. However, as a future insider researcher, it is worthwhile to acquire all the necessary skills step by step. It is my strong motivation as a practitioner that will keep me going.

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