Research Methods in the Swedish project Education for Participation – Philosophizing back a 'New' Life After Acquired Brain Injury

Ylva Backman
Teodor Gardelli
Viktor Gardelli
Caroline Strömberg
Åsa Gardelli
Luleå University of Technology
Department of Arts, Communication and Education
asa.gardelli@ltu.se

CV

Ylva Backman is a Senior Lecturer in Education, and has a B.A. degree in Philosophy.

Teodor Gardelli is a PhD Student in Philosophy.

Viktor Gardelli is a Senior Lecturer in Education, and has a B.A. degree in Philosophy and a M.A. degree in Practical Philosophy.

Caroline Strömberg has a Licentiate degree in Law and a B.A. degree in Philosophy.

Åsa Gardelli is an Associate Professor in Special Education and has a PhD degree in Engineering Psychology.

Ylva, Teodor, Viktor, and Caroline have years of experience of facilitating philosophical dialogues with different groups.

ABSTRACT
Annually, more than ten million people in all age groups in the world experience an acquired brain injury ('ABI'), which is a brain injury caused after birth by external forces (e.g. motor vehicle accidents) or certain internal factors (e.g. stroke). Brain injury survivors are often left with long-term impairments in cognitive, social, or emotional functioning. Despite a promising outset, research on the effectiveness of philosophical dialogues as an educational method for persons with ABI to increase their cognitive, social, and emotional functioning has, to our knowledge, been virtually non-existent. The present research project targets this and uses a pretest-posttest and mixed-method triangulation design and attempts to measure effects of two small-scale interventions carried out in the northern part of Sweden. In this text, the project's research design, data production, and data processing are described.

KEYWORDS
Acquired brain injury (ABI); Argumentation Rating Tool; disabilities; interviews; P4C; philosophical dialogues; PwC; traumatic brain injury (TBI).

RESUMEN
Anualmente, más de diez millones de personas en todos los grupos de edad en el mundo experimentan una lesión cerebral adquirida ("ABI"), que es una lesión cerebral causada después del nacimiento por fuerzas externas (por ejemplo, accidentes automovilísticos) o ciertos factores internos (por ejemplo, accidente cerebrovascular). Los sobrevivientes de

lesiones cerebrales a menudo quedan con deficiencias a largo plazo en el funcionamiento cognitivo, social o emocional. A pesar de un comienzo prometedor, la investigación sobre la efectividad de los diálogos filosóficos como método educativo para que las personas con ABI puedan engrasar su funcionamiento cognitivo, social y emocional ha sido, a nuestro entender, prácticamente inexistente. El presente proyecto de investigación se centra en este aspecto y utiliza un diseño de triangulación pretest-postest y métodos mixtos e intenta medir los efectos de dos intervenciones a pequeña escala llevadas a cabo en la parte norte de Suecia. En este texto, se describen el diseño de investigación del proyecto, la producción de datos y el procesamiento de datos.

PALABRAS CLAVE
Daño cerebral adquirido (DCA); Instrumento de Valoración de la Argumentación; discapacidades; entrevistas; P4C (FpN); diálogos filosóficos; PwC (FcN); daño cerebral traumático (DCT).

INTRODUCTION

Worldwide, approximately ten million people annually experience a traumatic brain injury ('TBI'), and TBIs are estimated to be the third leading cause of the global disease burden in 2020 (Colantonio et al., 2016). TBIs cause disabilities for all age groups in all countries (WHO, 2004). For instance, in the US, they extend to 'epidemic rates' (Fabiano & Sharrad, 2017, p. 26) with annual estimates around 80,000 – 100,000 people, and with more than 200,000 people hospitalized because of a TBI each year (Fabiano & Sharrad, 2017; Mills & Kreutzer, 2015).

TBIs are defined by Soeker as damages to the brain which occur as results of 'external forces caused by incidents such as assaults, motor vehicle accidents, excluding cerebral vascular accidents and degenerative brain diseases' (Soeker, 2016, p. 524). TBIs are a proper subclass of acquired brain injuries ('ABIs'), which consist of traumatic as well as non-traumatic acquired brain injuries, and thus also include brain injuries caused by a range of factors, e.g. strokes or infections. Effects vary depending on the classification of the brain injury as well as socio-economic factors (Fabiano & Sharrad, 2017; Cancelliere et al., 2014), and include post-traumatic stress disorder, depression, limited communication and linguistic skills, decreased social contacts and self-monitoring, impatience, memory loss, attention disorder, lower self-awareness, reductions in higher-level problem solving, decreased mental flexibility and abstract reasoning, lower workplace productivity, and higher unemployment rates (Fabiano & Sharrad, 2017; Sabatello, 2014).

According to Soeker (2016), the majority of the research in the field of brain injury rehabilitation concerns medical-biological interventions and gives little attention to the difficult endeavor of further societal reintegration. Brain injury survivors are often left with disabilities affecting their daily lives, such as difficulties with thinking, communication, and behavior (WHO, 2004). The long-term impairments of TBIs thus extend beyond the initial rehabilitation period and consist in lower cognitive, social, and/or emotional functioning (Colantonio et al., 2016; Mills & Kreutzer, 2015; Sabatello, 2014). Common and appropriate rehabilitation procedures emphasize treatment of cognitive, psychosocial, and behavioral issues, and main cognitive components are activities in attention, concentration, memory, language comprehension, and higher-level problem solving (Fabiano & Sharrard, 2017).

Besides work done by members of the present research group, research on the potential for philosophical dialogues as an effective educational method for persons with

ABI to increase their functioning in the cognitive, social, and emotional domains has, to our knowledge, been non-existent both nationally in Sweden and internationally, despite a promising outset (Backman, Gardelli, Gardelli, Gardelli, & Strömberg, 2012; Gardelli, 2012). In this paper, research methods regarding both data collection and data processing for this particular project will be presented. This might inspire further research in the field, as well as further dialogue into methodological issues within such research.

Considerations about the overall research design

The research project attempted to measure the effects of two small-scale interventions carried out in the northern part of Sweden. As an interdisciplinary project, it included researchers from Philosophy, Education, Special Education and Health Sciences. The purpose was to study the possible effectiveness of philosophical dialogues as an educational method for persons with ABI to regain lost, and develop new, abilities important for participating in society. The aims of the research project—which differ from the aims of this paper, as described above—were to study:

- to what extent the communicative abilities of persons with ABI are influenced by participating in philosophical dialogues,
- to what extent the critical thinking skills and dispositions of persons with ABI are influenced by the philosophical dialogues, and
- why participating in philosophical dialogues influences the regaining and development of communicative abilities and critical thinking skills and dispositions in persons with ABI to the extent found.

Besides measuring development in communication and cognition, subjective well-being development was also measured, which means that the research group measured development in all three of the cognitive, social and emotional domains.

Both qualitative and quantitative data have been collected. The benefits of collecting and analyzing both kinds of data within the research field of philosophical dialogues are emphasized, for instance, by UNESCO (2007), and in recent exploratory research similar in research methodology to the present study (Lam, 2012). Furthermore, in a meta-analysis, criticism has been delivered towards common methodological research designs in the field (García Moriyón, Rebollo, & Colom, 2005). The researchers of this meta-analysis highly recommend 'independent groups pretest-posttest' (García Moriyón et al., 2005, p. 17) designs, i.e. pretest-posttest designs combined with an experimental group and a control group, in order to exclude bias and increase reliability. In designing the present research project, this criticism and recommendation was taken into consideration. However, due to the study population, the research group found the most fitting design for this small-scale project to be a pretest-posttest and mixed-method triangulation design, with experimental groups and control groups consisting of the same individuals but at different times, as described in more detail below. The data collection consisted of observations, interviews, and tests. This methodological design allows for triangulation of the data, in order to obtain a coherent picture of the participants' and the group's processes and to reach better-supported conclusions.

Participants, experimental groups and control groups

The project used a somewhat modified experimental design. Due to the small numbers of participants in conjunction with the heterogeneity of people with acquired brain injuries, it was concluded that it would not be viable to form control groups consisting of individuals other than the experimental groups. Instead, the project used two experimental groups (E1 and E2) and two control groups (C1 and C2) such that the control groups consisted of the same persons as the experimental groups, but at different

times. Hence, C1 consists of the same individuals as E1, studied in another time frame, and the same applies to C2 and E2. This methodological setup also has the ethical benefit, from a research point of view, that all research subjects get to participate in the philosophical dialogues.

The two control groups (C1 and C2) had ordinary education/activities during autumn 2014, while for the two experimental groups (E1 and E2) intervention consisting of philosophical dialogues was carried out in the spring of 2015. E1 and E2 had twelve dialogues each during a period of fifteen weeks from January 2015 to May 2015. They had one dialogue each week, except when that was not possible due to various factors, e.g. holidays. Besides the participants with ABI in both of the groups, staff also participated in the philosophical dialogues.

The participants constituting C1 and E1 were selected from an educational program for persons with ABI, and the participants constituting C2 and E2 were selected from a daytime activity center for persons with ABI. These two groups were located in two different municipalities in the north of Sweden.

The participants from the educational program for persons with ABI were between 17 and 65 years old at the time of the first philosophical dialogue in that group. However, for persons with ABI to start the educational program, it is a requirement for them to be medically rehabilitated, in the sense that no further intensive medical treatment should be needed. The educational program consists of courses in basic language, mathematics, brain knowledge, arts, and something called "activities for daily life", among other things.

The participants at the daytime activity center for persons with ABI were between 60 and 65 years old at the time of the first philosophical dialogue in that group. The daytime activity center aims to offer social interaction and individually designed and meaningful activities with the support of trained staff. The environment is designed so that the individuals can participate in different activities, such as crafts and easier textile work, various leisure activities, kitchen activities (baking, cooking, etc.), gardening, and planned activities with a social orientation. Participants at the daytime activity center who have ABI are required to be medically rehabilitated, just as in the educational program.

The philosophical dialogues were conducted similarly to the manner prescribed in standard literature about Philosophy for Children (e.g. in Lipman, Sharp, & Oscanyan, 1980), first developed in the 1970s at the Institute for Advancement of Philosophy for Children in New Jersey. However, no philosophical novels or other texts were used. In the beginning of each of the philosophical dialogues in this research project, the participants were informed that they were going to participate in a philosophical dialogue, and that it included four steps: 1) thinking, 2) raising questions, 3) voting, and 4) conducting dialogue. In step 1, the participants thought in silence (or sometimes together with a caretaker) about what questions they wanted to ask. In step 2, the participants raised their question(s), if they had any, and the facilitator wrote the questions down on a whiteboard, and asked for clarifications if needed. Also other participants could ask such clarifying questions or in other ways assist in formulating the questions. In step 3, the participants voted for the question(s) they wanted to discuss. The facilitator told everyone to close or cover their eyes, and as the facilitator read the questions, the participants raised their hands when the question(s) that they wanted to vote for was read. Usually, they could choose up to two questions to vote for. The question that got the most votes was selected and discussed in step 4.

Two facilitators participated in each dialogue according to a specific model where the two facilitators have different roles. The roles consisted of one leading facilitator and one participating facilitator. This model was developed in a related project on methodological development and implementation of philosophical dialogues ('Young

thoughts – philosophical dialogues in democratic forms', funded by the Swedish Inheritance Fund ['Allmänna arvsfonden'] 2010–2014), previously run by members of the research group. According to the model, the leading facilitator acts on a meta-level of the dialogue, leading steps 1–3 described above, and, in step 4, the leading facilitator could, for instance, ask clarifying questions to the participants, summarize (or ask for a summary), probe for alternative perspectives, or ask for reasons, to help make the participants' contributions more relevant, reasoned, and understandable for others, in line with several methodological descriptions provided by various authors, e.g. Lipman et al. (1980). The participating facilitator, on the other hand, acts like any other participant of the dialogue, presenting answers, ideas, arguments, counterexamples, etc. The two members of the research group who acted as facilitators during almost all of the dialogues took turns in having the two different roles. They both had a university degree in philosophy as well as experience in teaching philosophy at university and in leading philosophical dialogues in different settings. During two of the dialogues, another member of the research group was a facilitator. Also, members of the staff were encouraged to (and did) participate in the dialogues.

Ethical considerations associated to research

Conducting research involving people with disabilities requires careful ethical consideration. Since this research project involves persons with ABI, an application for ethical vetting in accordance with the Swedish 'Act concerning the Ethical Review of Research Involving Humans' was sent to the Regional Ethical Review Board in Umeå, Sweden, which approved the study. Permission was also received from principal/manager and staff of the educational program and the activity center. The principle of informed consent was applied for all research participants. They were informed that they were at all times free to terminate participation without giving any reason and that they were guaranteed confidentiality.

Data collection

The data collection was carried out from October 2014 to June 2015. Both qualitative and quantitative data were collected through observations, interviews, and tests with the experimental groups, as well as interviews and tests with the control groups.

Observations

Each of the 24 philosophical dialogues was audio recorded as well as filmed with two cameras from different angles. One researcher in the project observed and took field notes during 21 of the philosophical dialogues. The facilitators and the observing researcher had discussions after the dialogues, and one of the facilitators took notes after the dialogues.

Interviews

Interviews were carried out with all of the participants with ABI. Each individual in-depth interview lasted for approximately one hour, and interviews were audio recorded. The interview guide focused primarily on the interviewees' perceptions of their communicative abilities, their critical thinking skills and dispositions, and their subjective well-being. The interviews were semi-structured, and consisted mostly of questions (some asking for numerical answers, some being yes-or-no-questions and some being open-ended) that the research group had formulated, but also of a few tools created by other researchers, such as the Cantril ladder (Cantril, 1965) (translated into Swedish by the researchers) and the Satisfaction With Life Scale (Diener, Emmons, Larsen, & Griffin, 1985). To utilize the Cantril ladder, the research group partly adapted it for the study population and translated it to Swedish. The recommended non-verbal ladder device

ranging from 0 to 10 was used, where the top was described as the best life, and the bottom the worst life, as the interviewee defined it. Each interviewee was asked questions about how (s)he defined the best and the worst possible future life in terms of happiness and unhappiness, where (s)he thinks (s)he stands on the ladder today, where (s)he stood before the ABI, and where (s)he believes (s)he will stand in the future. In the Satisfaction With Life Scale, answers range from 1 to 7 (where '1' represents "strongly disagree" and '7' represents "strongly agree") in regard to the following five statements: 1) 'In most ways my life is close to my ideal.', 2) 'The conditions of my life are excellent.', 3) 'I am satisfied with my life.', 4) 'So far I have gotten the important things I want in life.', and 5) 'If I could live my life over, I would change almost nothing.' (Diener, Emmons, Larsen, & Griffin, 1985, p. 72). A Swedish translation of the questions was used. Also, in the last round of interviews, some questions that specifically targeted how the interviewee perceived the philosophical dialogues were asked.

Focus group interviews (Vaughn, Schumm, & Sinagub, 1996; Wibeck, 2000) and individual interviews were conducted with staff. These interviews were much more loosely structured than the interviews with the participants. The researcher who did the focus group interviews had a number of questions that could be brought up during the interviews, but the discussions were allowed to move quite freely from these questions, with many follow-up questions asked by the interviewer, while not all of the prepared questions were asked to both groups of staff. The prepared questions concerned mainly how, in general, the staff perceived the dialogues and their effect on the participants and on themselves. Some more specific questions regarded whether the staff had perceived the dialogues as democratic or not and how the staff perceived the contributions of the facilitators. These interviews were recorded and transcribed.

Tests

The persons with ABI received *the New Jersey test of reasoning skills* ('NJTRS') in a Swedish translation made by members of the research group with authorization from Montclair State University. In the NJTRS, participants answer 50 multiple-choice questions, by choosing one out of three possible answers on each question. The NJTRS can be used to test elementary logical reasoning skills. The questions are presented using ordinary language, and there are no occurrences of specialized logical symbols, such as '∀', '¬', or '∧'. Since the answers consist of a tick in a box, one can use one's logical intuition and does not have to be able to provide any formal proofs.

Data processing

The interviews with the staff have been coded thematically. The results of the test scores have been statistically analyzed in order to see whether there are any significant differences between scores from pre to post in the experimental groups and the control groups. To analyze the filmed material, the *Argumentation Rating Tool* ('ART') was used (Reznitskaya, Wilkinson, Oyler, Bourdage-Reninger, & Sykes, 2016). ART is 'an observational rating scale designed to help teachers and researchers to evaluate the quality of teacher facilitation and student argumentation during group discussions of texts in elementary language arts classrooms.' (Reznitskaya et al., 2016). Members of the research group translated (after permission for this was granted from Montclair State University) the ART to Swedish. Using the translated tool, five researchers made distinct ratings for the facilitators (constituting the category 'teachers'), participants (constituting sub-category 1 of the category 'students') and staff (constituting sub-category 2 of the category 'students'), looking at recordings of discussions from the beginning of the intervention as well as from towards the end of the intervention. In order to reach a shared view of how to interpret and apply the criteria in the ART in this particular context, the

group of raters calibrated itself by rating and discussing their ratings of parts of other discussions from the intervention.

Reznitskaya et al. (2016) describe the ART's construction process. The four key standards of quality argumentation in the instrument were identified through reviews of previous scholarship on argumentation, logic, reasoning, and critical thinking (Reznitskaya et al., 2016). For each such standard, the authors connected talk moves intended to enforce the standard (Reznitskaya et al., 2016). These talk moves were based on the Dialogic Inquiry Tool, a previously developed instrument that was constructed with influence from a comprehensive review of more than a hundred articles about indicators for productive classroom talk, established pedagogical dialogue models promoting argumentation, existing observational instruments targeting classroom interactions, and repeated use and revisions of the ART through an empirical research program in public schools (Reznitskaya et al., 2016).

In Reznitskaya et al. (2016), validation studies of the ART are described. In one of the studies, the authors examined the correlation between ART scores and scores from two similar measures of classroom talk that assess general instructional quality and promote high-level reading comprehension. The three tools were used to analyze segments from video recorded dialogues in a 12-week dialogue intervention with randomly assigned classrooms to two treatment conditions (regular literature discussions and P4C); a setting which provided a variety in dialogue and argumentation quality (Reznitskaya et al., 2016). The authors found moderate-to-high overlaps and state that this suggests a commonality in a measured core construct (Reznitskaya et al., 2016).

Reznitskaya et al. (2016) also compared ART scores from video-segments to a fine-grained analysis of transcripts for the same segments, relying on Quantitative Content Analysis, which the authors state is a 'systematic, replicable, code-based description of communication content' (Reznitskaya et al., 2016, p. 18). They found medium positive correlations and concluded that the correlations were in the expected direction, reflecting the intended differences in the instruments, where the ART allows for a more nuanced assessment of classroom talk. The code-based analysis of transcripts was also used to document statistically significant differences between the two treatment groups and to compare these results to the ART scores, in order to see whether the ART is sensitive to the experimental manipulations (Reznitskaya et al., 2016). The results from both that study and another single group pre-test post-test study indicate that the ART is sensitive to such manipulation (Reznitskaya et al., 2016). The authors also conducted a reliability study using that same single group pre-test post-test design within a professional development program at two sites (Ohio and New Jersey), where blind raters rated video-segments. The results show 'high inter-rater reliability and internal consistency for composite scores (i.e., Teacher Facilitation, Student Argumentation, and Total Scores) within and across sites.' (Reznitskaya et al., 2016, p. 26).

Sketching some results

Without going into details about the data or results of the study, which would be outside the scope of this text, and which will be published in separate publications by this research group, a few findings can be sketched. From the ART scores, it can be concluded, among other things, that the argumentation in the dialogues towards the end of the intervention is shared, clear, and logical to a higher degree than in the beginning of the intervention. The numerical data from the interviews with the participants show, among other things, that the participants perceived positive changes with regard to a number of skills related to dialogue and argumentation, and an increased ability to concentrate. If the perceived changes represent actual changes, the development would help the persons

with ABI when participating in conversations in general, not only in philosophical dialogues. The positive ART results confirm to some extent that the perceived changes were actual. This, among some other preliminary results, suggests that philosophical dialogues with persons with acquired brain injuries can be fruitful.

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