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## Principles and methods to guide education for purpose: a Brazilian experience

Ulisses F. Araujo<sup>a</sup> , Valeria Amorim Arantes<sup>a</sup> , Hanna Cebel Danza<sup>b</sup>,  
Viviane Potenza Guimarães Pinheiro<sup>b</sup> and Monica Garbin<sup>b</sup>

<sup>a</sup>University of São Paulo, São Paulo, Brazil; <sup>b</sup>Virtual University of São Paulo, São Paulo, Brazil

### ABSTRACT

This article presents a Brazilian experience in training teachers to educate for purpose. Understanding that purpose is a value to be constructed through real-world and contextualised experiences, the authors discuss some psychological processes that underlie purpose development. Then the authors show how these processes are used in a purpose development programme they have conducted for in-service and pre-service teachers over the past six years. Using innovative pedagogies, such as Problem-Based Learning, Project-Based Learning, and Design Thinking, the authors describe the steps that teachers have to follow in project development, examples of the results accomplished with this kind of programme, and research findings that are being conducted to analyse the principles and results of this approach for training teachers in how to educate youth for purpose.

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## Introduction

Training teachers to foster purpose development among the new generation of students is a goal around the world. Education is not only for transmitting knowledge but also for changing the mindset of students and the whole community. This paper shares the authors' experiences to foster purpose through an educational approach in which teachers, as well as students, learn by doing. These active learning methods and psychological processes support teacher effectiveness in introducing meaningful classroom practices to accomplish purpose development.

## Education for purpose

Purpose is essential to move individuals to accomplish something that is both important to the self and directed at making a difference in the world beyond the self (Damon and Colby 2015; Damon, Menon, and Bronk 2003). Purpose is an internal representation of oneself that integrates four dimensions: personal meaning, intention, engagement and the effect the person has on others. Purpose is related to identity development (Bronk 2011) and the future

directedness of actions, achievements, persistence and motivation to act in accordance with the purpose (Bundick 2011). Purpose organises a coherent vision of a student's future that helps the individual view everyday activities, like schoolwork, in meaningful, relevant, motivated ways (Koshy and Mariano 2011).

Education can play an essential role in purpose development by leading youth to construct identity and future goals (Bundick and Tirri 2014; Damon 2008). School activities can expose students to caring adults who can guide them towards meaningful and prosocial ways to engage their personal interests (Damon 2009). Furthermore, school can help youth contemplate awareness, appreciation, and expression of both positive and negative emotions. Educational interventions that aim to construct values, interpersonal relationships, dialogue and self-knowledge can be helpful for developing life purpose in students (Martínez 2001; Puig 1995, 2007; Puig and Martín 2010).

Educational interventions to develop purpose should be based on principles of uncertainty and complexity because human development is a probabilistic, not a deterministic, phenomenon (Araujo, Puig, and Arantes 2007; Morin 1990). Schools interested in purposeful education should search for strategies that increase the probability that the beyond-the-self impact of students' actions is made visible to students. Such visibility helps these impacts integrate into the student's own psychological projections of themselves, increasing the possibility that purpose becomes a central value for them. Furthermore, fostering purpose development in schools not only helps students grow in their self-representation and moral identity, but also can help build 'moral atmospheres' and 'moral climates' within the school community (Araújo and Arantes 2009; Narvaez 2006; Power and Higgins-D'Alessandro 2008). Moral climates are especially helpful for developing the beyond-the-self dimension of purpose (Damon 2008).

Teachers are particularly important for these strategies because both teachers' character traits and their pedagogical skills enhance student purpose development (Bundick and Tirri 2014). Teachers' strong cognitive and verbal abilities; relevant content knowledge and pedagogical delivery skills; understanding of the cognitive, social, and emotional processes that undergird student learning; and abilities to adapt to changing circumstances enhance student academic achievement (Darling-Hammond 2000; Darling-Hammond and Bransford 2005; Rice 2003). They also help students' future orientation and planning, consideration of the consequences of their actions, reflective capacities and empathic capabilities, and connection of their school learning to what is important in their lives (Bundick and Tirri 2014; Damon 2009).

Teachers can help students develop self-knowledge about their values and feelings by giving students contextualised situations in which to construct purpose based on students' moral identities. Teachers act as tutors, strengthening the autonomy of students to make plans about their futures. These plans, in turn, develop further as students work through problems presented by the situations (Araujo et al. 2014; Decker and Bouhuijs 2009). Teachers' roles move from someone responsible for transmitting knowledge to students to someone mediating student participation in activities of consequence through active, interactive, collaborative teaching methods (Araujo et al. 2014; Decker and Bouhuijs 2009; Shulman 2004; Weimer 2002).

According to Araújo (2012, 393): 'education can be an intellectual adventure, mediated by teachers who allow students a voice, promote collective and cooperative learning experiences, encourage curiosity and give them conditions to find answers to their own questions

about everyday life and scientific knowledge'. As a result, teachers develop close relationships with students and serve as mediators between students' growing purposes and the world so they can open new possibilities to the students (Decker and Bouhuijs 2009; Rué 2009).

## Purpose based on values

Purpose can be considered a strongly *valued*, central part of an individual's identity, especially the moral part of identity that aims to impact the world beyond the self. Central, stable values are building blocks of different types of purposes. Educating for purpose, therefore, is strengthened when teachers focus on making students more intentional regarding which values are central to their self-representations.

That brings to the fore the question: What are values, and how are values constructed psychologically? Piaget (1954) suggested that values are constructed from affective assessments of individuals' own experiences and from affective projections onto objects or other people. Values originate from a dynamic psychological regulatory system between the person and the external world. This regulation between the individual and the environment occurs through the continued interaction of personal values and social rules. Over time, this interaction develops a *value-specific* system separate from the original, general psychological system, and the values system becomes wider in scope and more stable. More stable values, in turn, lead individuals to set standards for their own behaviour, which becomes organised into behavioural norms that influence the person to act accordingly (Piaget and Gréco [1959] 1974). These self-developed, self-regulating behavioural norms are the foundation of purpose.

In the 1990s, this view of values as a dynamic system became relevant in moral psychology as scholars sought to understand the relationship between moral thoughts and actions. For example, Blasi (1995) indicated that, upon values' integration into emotional systems, values provide a basis for the construction of identity by improving the consistency between moral motivations and moral actions through progressive degrees of integration. As a result, an isolated value is less powerful in influencing thinking and behaviour, whereas a more integrated value is central to a person's identity and cognition. As values become more integrated, moral feelings such as guilt, sadness, remorse, anger and shame arise (Araujo 2000, 2003; Lewis, Haviland-Jones, and Barrett 2010; Muris and Meesters 2014; Pinheiro 2009; Pinheiro and Arantes 2015). Adding this moral tone to self-defined behavioural norms becomes a beyond-the-self-focused purpose.

The scholarly literature is not clear about how elements of purpose and morality cohere. Some scholars, such as Damon (1995), believe that one's moral values are central to one's *self-concept* starting in childhood and, therefore, are foundational to purpose development. But other scholars, such as La Taille (1996), suggest moral values are tied to *personal identity*, and differences in moral behaviour between individuals reflect differences in the moral values each holds.

Interpreting Piaget's ideas and addressing this disagreement between self-concept and personal identity, values belong to the affective dimension of the human psyche (Araujo, Puig, and Arantes 2007). Values are constructed based on individuals' actions and projections on to the objective and subjective world (Araujo, Puig, and Arantes 2007). As values are constructed, they affect self-representations, which can become integrated into a system that 'sifts' values as more central or more peripheral in importance. What determines this 'positioning' in a

person's identity is the intensity of the emotional 'charge' linked to a specific value. Central values are associated with more intense feelings (Araujo, Puig, and Arantes 2007).

As a stable conception of the future within the person's identity, purpose reinforces itself through positive feelings when events go well and through resilience when events are difficult (Moran 2015). Purpose develops as meaningful opportunities to engage other people are discovered, fostered, pursued, and concretised with the support and guidance of teachers, friends, family and caring adults from a variety of life domains (Moran et al. 2012). Educational experiences with a higher likelihood of giving students such emotional charges are more likely to influence their values and, thus, their purposes.

## Innovative pedagogies to develop youth purpose

Problem-Based Learning, Project-Based Learning and Design Thinking can help individuals actively construct their life purposes. These learning methodologies bring coherence to values, goals and meanings important to the person. They help individuals integrate their experiences into a personal beacon for their futures by emphasising the needs, possibilities, and opportunities for individuals and communities (Araújo 2012; Araujo and Arantes 2014; Araujo et al. 2014).

These active-learning approaches have become implemented more often at all educational levels around the world (Araujo and Arantes 2014). First, Problem-Based Learning is a pedagogical strategy for posing significant, contextualised, real-world situations, and providing resources, guidance, and instruction to students as they develop content knowledge and problem-solving skills (Mayo et al. 1993). Second, complementary to Problem-Based Learning is Project-Based Learning (De Graaff and Kolmos 2007). The word *project* comes from the Latin *projectus*, which means 'jutting out'. A project involves launching something into the world, which requires developing abilities to search for and select goals from a set of values and to anticipate actions that realise those goals (Machado 2000). Third, Design Thinking integrates multidisciplinary collaboration and iterative improvement to produce innovative products and services focused on the end-user's needs (IDEO 2009; Plattner, Meinel, and Leifer 2011).

From start to finish, these methodologies emphasise values and beyond-the-self impact because they focus not only on completing tasks but also on creating effects in the world. Solutions arise from careful study of how a designed solution affects a person or a community. The designer listens to current and potential users to understand their perspectives first, and only then creates a solution.

These three methodologies, when applied to schools, give purpose to schoolwork and to individual students. They empower students and support the development of purpose in its moral, beyond-the-self dimension. Students become immersed in real-world situations, so purpose is contextualised and not an abstract concept. Students listen to the needs, desires and necessities of others, so purpose becomes other oriented. Students search for effective ways to make the world better through creative and innovative solutions, so purpose results in prosocial effects. These educational experiences support students to take an active role in constructing purposes based on moral values.

First, students work in collaborative groups to solve problems. They collect stories from and listening to the needs of the people for whom the project aims to help. Second, student groups translate what was heard into frameworks, solutions and prototypes to improve

others' well-being (Araujo and Arantes 2014; Araujo et al. 2014). Third, student groups deliver the prototypes to potential users to consider the solution's feasibility, viability and desirability.

## **A teacher training programme in Brazil**

Over the past six years, two Brazilian universities launched programmes to direct more than 3000 undergraduate-level teacher candidates and graduate-level teachers-in-service towards values-based prosocial themes. Specific themes varied according to the specific university. For example, the University of São Paulo defined prosocial projects in relation to human rights issues included in the Universal Human Rights Declaration (1948), whereas the Virtual University of São Paulo focused on themes that promote ethics and citizenship in schools. Within these broad themes, each collaborative group of teachers-in-training defined a specific problem based on local needs and values to work on.

Incorporating Problem-Based Learning, Project-Based Learning and Design Thinking, these programmes required teachers to work collaboratively to solve problems in their school communities (Araujo and Arantes 2014). They spent approximately four weeks formulating a specific problem to investigate, approaching and listening to community members, continually clarifying and refining the problem, and seeking and mapping information about how their theme was reflected in the daily life of their schools. Then, they created the first solution prototype, showed it to the school community for discussion and feedback, then improved the prototype iteratively until the designers and the school community members felt that the solution worked well. The whole process took 15 weeks. Below are three brief examples that depict specific instances of this process and the results that ensued.

### ***An app to help deaf students learn the periodic table***

One team of science teachers aimed to develop tools to improve citizenship in education. They observed a public school in the city of Indaiatuba, eventually focusing on the challenges that deaf students faced in chemistry class. After searching for and mapping currently available tools, they realised there were no mobile apps to help deaf students learn the periodic table. So they prototyped an app that linked Brazilian Sign Language to the periodic table. These teachers realised the value of accessible information in equalising classroom situations to be more inclusive for a variety of learner types. This value drove their project's purpose to improve accessibility for one type of learner: deaf students.

### ***A water filter for cooking***

Another team of undergraduate teacher candidates decided to address water shortage issues in the local area by visiting a nearby slum to talk to residents about their water usage. Through careful observation of residents' daily lives, the teachers noticed that, although everyone had a water filter in their homes, no one used filtered water for cooking. They said it took too long to fill a pan with filtered water. So the teachers prototyped an inexpensive filter with a bigger capacity and faster water release. At the end of the project, they delivered to the community a 20-litre water filter with a big tap that cost only US\$15. These teachers realised the value of convenience for maintaining individual and community health. This

value drove their project's purpose to make available an inexpensive, easy-to-use tool for cooking with cleaner water.

### ***A website for youth to learn about possible careers***

A third team recognised that young people may not reflect upon their vocational strengths and abilities in order to make good career decisions. They collaborated with university first-year students and high school pupils so as better to understand how and when youth encounter or seek information about career options. Team members created a website for adolescents to explore professions. This website used more youth-friendly language and organisation. For example, the teachers divided the website into three areas based on what a particular young person might need: A 'Basic' area for youth who do not know what to do, an 'Application' area for youth seeking college applications, and a 'Job' area for youth exploring specific professional fields. This teacher team came to understand that interacting with the website, itself, was an intervention that helped young people develop their own life purposes as they navigated career information. They realised the values of exploration and individuation. These values drove their project's purpose to create an interactive platform for youth to hone their vocational interests and aptitudes that, in turn, could help those youth not only hold jobs but also find purpose.

### **Final remarks**

Dynamic psychological systems lead to the construction of values and, in particular, moral values. Values can become purposes through positive experiences that make some values more central within an individual's identity. Since people learn by doing, teachers that create learning situations in which students can construct purpose-developing values may be particularly sought after in the coming years. Purpose values aim to affect others positively. This paper presented three powerful active-learning methodologies that can help teachers make their pedagogy more purpose oriented.

Problem-Based Learning, Project-Based Learning and Design Thinking are three methodologies that have been effective in Brazil to train teachers-in-service and teacher candidates how they can develop purposeful projects and activities in their courses, regardless of their course disciplines. The collaborative nature of these methodologies, both among the teachers and with the community, supports a moral atmosphere in their schools, which, in turn, supports teachers' construction of their own values and purposes.

Research is underway to assess further the effectiveness of these methodologies, to improve teacher education programmes, and to transfer these opportunities to other countries. In particular, these studies assess teachers' values after the programme and whether they implement purposeful education and construct moral atmospheres in their schools. Furthermore, these studies examine whether their students construct beyond-the-self purposes after participating in active-learning projects. It may take some time to improve education to foster a purposeful citizenship and a more just society. But outcomes from these active-learning methodologies provide preliminary evidence that a collaborative values-in-interaction approach to education may speed the development of purpose-focused education.

## Disclosure statement

No potential conflict of interest was reported by the authors.

## ORCID

Ulisses F. Araujo  <http://orcid.org/0000-0002-2955-8281>

Valeria Amorim Arantes  <http://orcid.org/0000-0002-2154-6147>

## References

- Araujo, U. F. 2000. "Escola, democracia e a construção de personalidades morais [School, Democracy and the Construction of Moral Personalities]." *Educação e Pesquisa* [Education and Research] 26 (2): 91–107.
- Araujo, U. F. 2012. "Promoting Ethical and Environmental Awareness in Vulnerable Communities: A Research Action Plan." *Journal of Moral Education* 41: 389–397.
- Araujo, U. F., and V. A. Arantes. 2009. "The Ethics and Citizenship Programme: A Brazilian Experience in Moral Education." *Journal of Moral Education* 38: 489–511.
- Araujo, U. F., and V. A. Arantes. 2014. "Re-inventing School to Develop Active Citizens." In *Positive Psychology in Latin America, Cross-cultural. Advancements in Positive Psychology*. 10 vol, edited by A. Castro Solano, 241–254. New York: Springer.
- Araujo, U. F., R. Fruchter, M. C. Garbin, L. N. Pascoalino, and V. A. Arantes. 2014. "The Reorganization of Time, Space, and Relationships in School with the Use of Active Learning Methodologies and Collaborative Tools." *Educação temática digital, supl. pesquisa, desenvolvimento e formação na educação* [In Digital Thematic Education, suppl. Research, Development and Training in Education] 16 (1): 84–89.
- Araujo, U. F., J. M. Puig, and V. A. Arantes. 2007. *Educação e valores: Pontos e contrapontos* [Education and Values: Points and Counterpoints]. São Paulo: Summus.
- Blasi, A. 1995. "The Development of Identity: Some Implications for Moral Functioning." In *The Moral Self*, edited by G. Noam and T. Wren, 99–122. Cambridge, MA: The MIT Press.
- Bronk, K. C. 2011. "The Role of Purpose in Life in Healthy Identity Formation: A Grounded Model." In *New Directions for Youth Development*, edited by Jennifer Mariano, 31–44. San Francisco, CA: Jossey-Bass.
- Bundick, M. J. 2011. "The Benefits of Reflecting on and Discussing Purpose in Life in Emerging Adults." In *New Directions for Youth Development*, edited by Jennifer Mariano, 89–103. San Francisco, CA: Jossey-Bass.
- Bundick, M., and K. Tirri. 2014. "Student Perceptions of Teacher Support and Competencies for Fostering Youth Purpose and Positive Youth Development: Perspectives From Two Countries." *Applied Developmental Science* 18 (3): 148–162.
- Damon, W. 1995. *Greater Expectations: Overcoming the Culture of Indulgence in America's Homes and Schools*. New York: The Free Press.
- Damon, W. 2008. *The Path to Purpose: Helping Our Children Find Their Calling in Life*. New York: Simon and Schuster.
- Damon, W. 2009. "The Why Question: Teachers Can Instill a Sense of Purpose." *Education Next* 9 (3): 84.
- Damon, W., and A. Colby. 2015. *The Power of Ideals: The Real Story of Moral Choice*. New York: Oxford.
- Damon, W., J. M. Menon, and K. Bronk. 2003. "The Development of Purpose During Adolescence." *Applied Developmental Science* 7 (3): 119–128.
- Darling-Hammond, L. 2000. "Teacher Quality and Student Achievement." *Education Policy Analysis Archives* 8 (1): 1–44.
- Darling-Hammond, L., and J. Bransford. 2005. *Preparing Teachers for a Changing World: What Teachers Should Learn and Be Able to Do*. 1st ed. San Francisco, CA: Jossey-Bass.
- Decker, I. R., and P. A. J. Bouhuijs. 2009. "Aprendizagem baseada em problemas e metodologia da problematização: Identificando e analisando continuidades e descontinuidades nos processos de ensino-aprendizagem [Problem-based Learning and Methodology of Questioning: Identifying



- and Analyzing Continuities and Discontinuities in Teaching–Learning Processes].” In *Aprendizagem baseada em problemas no ensino superior* [Problem-based Learning in Higher Education], edited by Ulisses Araujo and Genoveva Sastre, 177–204. São Paulo: Summus.
- De Graaff, E., and A. Kolmos. 2007. “History of Problem-based and Project-based Learning.” In *Management of Change: Implementation of Problem-Based and Project-Based Learning in Engineering*, edited by Erik De Graaff and Anette Kolmos, 1–8. Rotterdam: Sense.
- IDEO. 2009. Human-centered Design Toolkit. <http://www.ideo.com/work/human-centered-design-toolkit>.
- Koshy, S. I., and J. M. Mariano. 2011. “Promoting Youth Purpose: A Review of the Literature.” In *New Directions for Youth Development*, edited by Jennifer Mariano, 13–29. San Francisco, CA: Jossey-Bass.
- La Taille, Y. D. 1996. “A indisciplina e o sentimento de vergonha [Indiscipline and Shame].” In *Indisciplina na escola: Alternativas teóricas e práticas* [Indiscipline in School: Theoretical and Practical Alternatives], edited by Julio Groppa Aquino, 9–23. São Paulo: Summus.
- Lewis, M., J. M. Haviland-Jones, and L. F. Barrett. 2010. *Handbook of Emotions*. New York: Guilford Press.
- Machado, N. 2000. *Educação: Projetos e valores* [Education: Projects and Values]. São Paulo: Escrituras Editora.
- Martínez, M. 2001. “Escuela y construcción de valores [School and Values Development].” In *Un lugar llamado escuela: En la sociedad de la información y de la diversidad* [A Place Called School: In the Information Society and Diversity], edited by Miquel Martínez and C. Bujons, 26–48. Barcelona: Ariel.
- Mayo, P., M. B. Donnelly, P. P. Nash, and R. W. Schwartz. 1993. “Student Perceptions of Tutor Effectiveness in a Problem-based Surgery Clerkship.” *Teaching and Learning in Medicine* 5 (4): 227–233.
- Moran, S. 2015. “Adolescent Aspirations for Change: Creativity as a Life Purpose.” *Asia Pacific Education Review* 16 (2): 167–175. doi:10.1007/s12564-015-9363-z.
- Moran, S., M. J. Bundick, H. Malin, and T. S. Reilly. 2012. “How Supportive of Their Specific Purposes Do Youth Believe Their Family and Friends Are?” *Journal of Adolescent Research* 28 (3): 348–377. doi:10.1177/0743558412457816.
- Morin, E. 1990. *Introduction à la pensée complexe* [Introduction to Complex Thought]. Paris: ESF.
- Muris, P., and C. Meesters. 2014. “Small or Big in the Eyes of the Other: On the Developmental Psychopathology of Self-conscious Emotions as Shame, Guilt, and Pride.” *Clinical Child and Family Psychology Review* 17 (1): 19–40. doi:10.1007/s10567-013-0137-z.
- Narvaez, D. 2006. “Integrative Ethical Education.” In *Handbook of Moral Development*, edited by Melanie Killen and Judith Smetana, 703–733. Mahwah, NJ: Erlbaum.
- Piaget, J. 1954. *Les relations entre l'intelligence et l'affectivité dans le développement de l'enfant* [The Relations between Intelligence and Emotions in the Development of Infants]. Paris: University of Paris-Sorbonne. <http://www.fondationjeanpiaget.ch>.
- Piaget, J., and P. Gréco. (1959) 1974. *Aprendizagem e conhecimento* [Learning and Knowledge]. São Paulo: Freitas Bastos.
- Pinheiro, V. P. G. A. 2009. “A generosidade e os sentimentos morais: Um estudo exploratório na perspectiva dos modelos organizadores do pensamento [Generosity and Moral Feelings: An Exploratory Study in the Perspective of the Organizing Models of Thought].” Master’s thesis, School of Education of São Paulo University.
- Pinheiro, V. P. G., and V. A. Arantes. 2015. “Values and Feelings in Young Brazilians’ Purposes.” *Paidéia (Ribeirão Preto)* 25 (61): 201–209.
- Plattner, H., C. Meinel, and L. Leifer. 2011. *Design Thinking: Understand, Improve, Apply*. Berlin: Springer.
- Power, F. C., and A. Higgins-D’Alessandro. 2008. “The Just Community Approach to Moral Education and the Moral Atmosphere of the School.” In *Handbook of Moral and Character Education*, edited by Larry P. Nucci and Darcia Narvaez, 230–247. New York: Routledge.
- Puig, J. M. 1995. *La educación moral en la enseñanza obligatoria* [Moral Education in the Basic Education]. Barcelona: Editorial Horsori.
- Puig, J. M. 2007. “Aprender a viver [Learn to Live].” In *Educação e valores: Pontos e contrapontos* [Education and Values: Points and Counterpoints], edited by Ulisses Araujo, Josep Maria Puig, and Valéria Arantes, 65–106. São Paulo: Summus.
- Puig, J. M., and X. Martín. 2010. *As sete Ccompetências básicas para educar em valores* [Seven Skills to Educate in Values]. São Paulo: Summus.

- Rice, J. K. 2003. *Teacher Quality: Understanding the Effectiveness of Teacher Attributes*. Washington, DC: Economic Policy Institute.
- Rué, J. 2009. "Aprender com autonomia no ensino superior [Learning Autonomy in Higher Education]." In *Aprendizagem baseada em problemas no ensino superior*. [Problem-based Learning in Higher Education], edited by Ulisses Araujo and Genoveva Sastre, 157–176. São Paulo: Summus.
- Shulman, L. S. 2004. *The Wisdom of Practice*. San Francisco, CA: Jossey-Bass.
- Weimer, M. 2002. *Learner-centered Teaching: Five Key Changes to Practice*. San Francisco, CA: Wiley.