




Conceptualizing powerful knowledge in economics

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ABSTRACT

This paper extends the theory of powerful knowledge to school economics by articulating the nature of powerful disciplinary knowledge in the subject. In order to develop a framework for conceptualizing powerful knowledge in economics, the literature that identifies powerful knowledge in other school subjects is first explored. Then, follows an examination of the implications to the specific case of school economics regarding economic concepts and forms of economics knowledge that might be regarded as powerful according to Young's definition of powerful knowledge. I then proceed to develop a conceptual framework that identifies powerful disciplinary knowledge in the subject. This paper instigates the discussion about what constitutes powerful knowledge in school economics that enables epistemic access for young people that fosters their human development and flourishing.

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The notion of powerful knowledge uses disciplinary knowledge to challenge students and as an opportunity to provide learning experiences that move them beyond their current knowledge (Brant, 2022; Young, 2018). A teacher is invited to ask: 'Does this curriculum take my students beyond their experience and enable [them] to envisage alternatives that have some basis in the real world?' (Young, 2013, p. 106). This is the empowerment provided by powerful knowledge that arises from the students' entitlement to access to disciplinary knowledge.

There is a paucity of research evidence and theorization in secondary school economics education (Brant, 2015; Brant & Panjwani, 2015; Davies & Brant, 2006; Shanks, 2020), especially in the area relating to powerful knowledge in the subject. For instance, I encountered only one peer-reviewed study that attempts to explore powerful disciplinary knowledge in economics, Modig (2021). This researcher explores powerful knowledge in economics in the context of higher education, discussing how opportunity cost, interest, marginal concepts, demand and supply, inflation and GDP/growth are concepts regarded by Swedish scholars of economics as relevant for people when dealing with economic issues in their daily lives. Because of this lack of conceptualization of powerful knowledge in school economics, I first review research that identifies powerful knowledge in some other school subjects. I then develop a conceptual framework that identifies disciplinary knowledge in economics by analysing the implications to the case of economics regarding the concepts and forms of economics knowledge that might be considered as powerful according to Young's notion of powerful knowledge. My argument is that if economics is to contribute to a student's education, it must be able to demonstrate that its knowledge can be powerful in the ways identified by Young.

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1. Powerful disciplinary knowledge in school subjects

In this section I review the literature that identifies powerful knowledge in geography, history, physics and mathematics education. I have chosen these subjects because research has been carried out in these disciplinary specialisms to respond to the question concerning the nature of powerful disciplinary knowledge. The literature from this research provides insights for the conceptualization of powerful knowledge in other disciplines including economics.

1.1. Geography education

A number of researchers have attempted to identify powerful knowledge in geography. Lambert (2014) maintains that this knowledge ‘cannot be itemized in a Hirschian list’ (p.9). He claims that powerful geographical knowledge includes ‘the acquisition and development of deep descriptive and explanatory world knowledge’ (Lambert, 2017b, p. 13), ‘the systematic conceptual knowledge of place, space and environment that makes up “relational understanding”’ (Lambert, 2014, p. 9), and ‘a propensity to apply the analysis of alternative social, economic and environmental futures to particular place contexts’ (Lambert, 2017b, p. 13). Lambert (2018b) then discusses that powerful knowledge in school geography consists of substantive knowledge (‘knowing that’), procedural knowledge (how it works), and inferential knowledge (how various aspects link together).

Another researcher, Roberts (2013, 2014, 2017), claims that ‘the key purposes of geographical education are to enable students to think geographically and to develop a critical understanding of the world’ (Roberts, 2017, p. 8). She discusses that geographical education is powerful if it values students’ everyday knowledge and enables them to make connections between this knowledge and school geography; empowers them to perceive the world in different ways; raises their awareness of the values dimension of decisions that affect local, national and world geography; develops the skills needed to make sense of geographical knowledge; and enables young people to participate actively in learning. She maintains that geographical education ‘is powerful if the transformative effects of geographical education on students’ thinking endure beyond school into adult life’ (ibid., p.9).

Maude (2016, 2018, 2020, 2022, 2023) examines what powerful geographical knowledge may enable students to do and think as a result of engaging in formal geographical education. He contends that this ‘alternative way of interpreting the concept, one that is about what the knowledge does’ (Maude, 2018, p. 180), is prominent in Young’s writings. Maude illustrates this aspect by the following statement from Young:

Powerful knowledge refers to what the knowledge can do or what intellectual power it gives to those who have access to it. Powerful knowledge provides more reliable explanations and new ways of thinking about the world and acquiring it and can provide learners with a language for engaging in political, moral, and other kinds of debates. (Young, 2008, p. 14)

Maude’s argument is that ‘these descriptions, and others by Young, focus on what powerful knowledge can do for those who have it, and not on what it is like and how it is produced’ (Maude, 2018, p. 180). He argues that these two ways of describing powerful knowledge are interrelated: the knowledge that gives young people these powers is likely to be derived from the knowledge that is the ‘best’ available at present from epistemic communities (Young, 2008).

In his application of powerful knowledge to the case of school geography, Maude (2016, 2018, 2020, 2022) adopts ‘the second view of powerful knowledge, i.e. about the intellectual powers that knowledge may give students’ (Maude, 2016, p. 72). He discusses five types of knowledge in geography education that he suggests are potentially powerful. These include knowledge of the world; knowledge that enables students with new ways of thinking; knowledge that empowers students to analyze and explain the natural and the social worlds; knowledge that provides students some power over their own knowledge; and knowledge that enables young people to follow and participate in debates on significant local, national and global issues. Lambert (2017a) endorses this approach by arguing that rather than ‘search for a list of content that might

purport to be definitive', Maude (2016) emphasizes 'the *characteristics* that make (geographical) knowledge powerful in the first place, and then on the kind of "power" this knowledge gives to those who possess it' (Lambert, 2017a, p. 134). Maude (2022) elaborates how these types of knowledge and ways of thinking are based on the concepts of place, space, environment, interconnection, scale, change and sustainability. These concepts underpin the curriculum and make it distinctively geographical through the aspects they identify as significant, the ways in which they enable students to perceive the world, and the methods of analysis and criteria for evaluation they generate.

The GeoCapabilities project and its publications further contribute to exploring powerful geographical knowledge (e.g. Bustin, 2019; Lambert, 2017a, b, 2018a; Lambert et al., 2015; Maude, 2020). The project is underpinned by a capabilities approach which perceives the central aim of education as the human flourishing through the development of human capabilities (Bustin, 2019; Deng, 2020, 2022; Lambert, 2017b). The geographical knowledge that contributes to the development of capabilities is powerful disciplinary knowledge that contributes 'to the education of all young people (or, put another way, how weak geographical knowledge acquisition in school contributes in a particular way to the deprivation of individuals' capabilities)' (Lambert et al., 2015, p. 730).

1.2. History education

Chapman (2021a, b) and Kitson (2021) discuss the contours of a disciplinary history education that might meet the epistemic criteria that powerful knowledge establishes. Chapman (2021a) analyzes a number of models relating to conceptual aspects of historical knowing. He discusses ontological and epistemic categories and the corresponding division between 'first-' and 'second-order' knowledge and understanding. First-order knowledge and understanding is world-knowledge about the past, such as the concept 'peasant' (Chapman & Georgiou, 2021). Second-order conceptual knowledge relates to history as a form of knowledge and a way of thinking, 'how we make sense of our knowledge of the past' (ibid., p.76). Examples of second-order concepts are cause and consequence, change and continuity, evidence, interpretation, significance and similarity and difference (Chapman, 2021a; Chapman & Georgiou, 2021; Kitson, 2021). The idea underlying the first-/second-order distinction is that learning history does not only involve grasping a large body of content but, most importantly, 'learning how to process and make sense of this information by learning how to construct and evaluate knowledge claims (evidential reasoning), how to construct historical explanations (causal, empathetic and intentional explanation), how to evaluate historical significance, and so on' (Chapman & Georgiou, 2021, p. 94). For students to experience deep learning in history, they need to progress in both the first and the second-order dimensions of domain knowledge and understanding (Chapman, 2021a; Chapman & Georgiou, 2021). These authors emphasize the second-order dimension because they claim that it is critical in enabling students to make sense of what is learned.

Drawing on Maude (2016) who discusses the typology of the types of knowledge that school geography can develop, another author, Kitson (2021), explores what an 'enabling' view of the power of school history might look like by identifying three types of dispositions that powerful knowledge in school history might help students develop. These are being able to discover new ways of perceiving the world, engaging in society's conversations and debates about itself, and understanding the grounds for accepting or rejecting knowledge claims. In each case, she provides examples to illustrate how history education offers specific contributions to these dispositions—the kinds of 'power' historical knowledge and historical thinking can offer students today. She maintains that students need to learn enough substantive knowledge that takes them beyond their everyday experiences. This knowledge is 'part of a wider disciplinary knowledge that makes the process of knowledge creation in history visible' (ibid., p.38), consisting of 'an appropriate balance between . . . propositional (know-that) knowledge and procedural (know-how) knowledge' (ibid., p.39). She also argues in favour of the 'need for more "big picture history" in the form of broad frameworks' (ibid.,

p.45) that assist students to orientate themselves in time, enabling them 'to draw on the past to inform the present and future and to gain a sense of perspective about their lives today' (ibid., p.44).

1.3. Physics education

Yates and Millar (2016) draw on their research project that interviewed university physicists and school physics teachers in Australia about how they understood the field of physics and what was needed or valuable in the curriculum. The participants perceived the value of their subject and the powerful knowledge it provided, although this was not explicitly spelled out. What they valued most, however, was the infusion of social values and skills related to the subject. The authors note that 'both physicists and physics teachers conveyed their own sense that what is powerful is related to conveying in some way the discipline, not simply bits of useful knowledge or techniques produced by that discipline' (p.309).

The participants kept in mind that most students found it difficult to grasp the mathematics involved in contemporary physics and that most probably they will not opt to study the subject after finishing their secondary school studies. As such they provided their students with 'an initial experience of approaching the world as a physicist' (p.307). This included a basic understanding of how motors work, following scientific debates in society, being familiar with the history of the field and its achievements, and 'a (motivating) sense of the big field and problems physics is involved in today' (ibid.). These teachers wanted their students to learn the basic ways of how to act like physicists or grasp the basic formulae, foundational knowledge and theories of physics. However, they also 'wanted students to learn to appreciate, or respect, or even better, become passionate about science and this way of doing things, in part through seeing and respecting what physics today has to offer' (ibid.).

1.4. Mathematics education

Curriculum principles developed by curriculum theorists and teachers aim to maximize the chances that all students gain epistemic access (Golding, 2022; Hudson, 2018; Hudson et al., 2015). This is access to the 'best' knowledge available in any field of study young people engage in (Young, 2008, 2013, 2014c, 2018), being the 'better knowledge, more reliable knowledge, knowledge nearer the truth' (Young, 2013, p. 107). Hudson (2018) takes this notion of powerful knowledge as a starting point and considers it as a question of high epistemic quality in the mathematics curriculum. It is knowledge that is 'fallible, refutable and uncertain, and which promotes critical thinking, creative reasoning, the generation of multiple solutions and of learning from errors and mistakes' (ibid., p.388). In contrast, school mathematics of low epistemic quality is 'infallible, authoritarian, dogmatic, absolutist, irrefutable and certain, and also involves rules that follow strict procedures and right or wrong answers' (ibid., p.389). It is a 'mutated form of mathematical fundamentalism' made up of degraded and low epistemic quality where students do not experience the sense of enjoyment and fulfilment of learning the subject (ibid.).

Another author, Golding (2022), discusses the mathematical epistemic quality evidenced in the classrooms her team researched. This epistemic quality is the quality of the syntactical and substantive mathematics offered to students, and the quality of epistemology. The latter is 'the theory of the disciplinary knowledge, especially with regard to its methods, validity and scope, and the approaches to establishing new knowledge as justified belief' (ibid., p.138). She contends that the quality of epistemic access depends on the teacher's knowledge, skills, beliefs and commitment, and curriculum interpretation. While Hudson (2018) exemplifies high and low epistemic quality in school mathematics with descriptions of widely contrasting transformations of the intended curriculum, the findings of Golding (2022) similarly suggest a range of quality between these two extremes.

Golding (2022) claims that knowledge of high epistemic quality includes the epistemology of school mathematics as a discipline closely related to the parent discipline, knowledge of a range

of substantive mathematical content and processes, utilitarian knowledge for everyday purposes, and socially and economically empowering knowledge that enables the appreciation of the world. It is knowledge that enables epistemological ascent, 'without which learners cannot fully participate in, or appreciate, the powerful culture of the discipline' (Golding, 2022, p. 149). The ascent develops over time in a manner that 'students' ways of mathematical working and being are increasingly aligned with those of mathematics practitioners in different fields' (ibid., p.150).

1.5. Developing a framework for powerful knowledge in economics

A common thread running through the literature discussed above is the examination of the characteristics of powerful knowledge in the subject concerned and what this knowledge may enable the students to do. This provides insights for a way forward for the exploration and the identification of powerful knowledge in school economics.

The literature emphasizes the intellectual powers that powerful knowledge in a school subject may provide students with (Chapman & Georgiou, 2021, 2021; GeoCapabilities (n.d); Kitson, 2021; Maude, 2016, 2018, 2020, 2022, 2023; Roberts, 2013, 2014, 2017). These authors concur that the key purposes of educating in the school subject are to enable the students to think in the subject (e.g. historical thinking) and to develop a critical understanding of the world. The GeoCapabilities project, for example, argues in favour of the acquisition of knowledge that contributes to the education of all students by enhancing their capabilities. This knowledge seeks to assist the students to mature from their everyday ideas about the knowledge in a subject into acquiring powerful disciplinary concepts. By way of contrast, although Yates and Millar (2016) report that teachers valued powerful knowledge in physics education, their emphasis was that young people became passionate about the subject and perceived and respected what physics has to offer.

The notion of epistemic quality from mathematics education provides insights to developing powerful knowledge in economics which is dominated by the neoclassical orthodoxy (Chang, 2011, 2014; Lawson, 1997; Skidelsky, 2020). Like powerful knowledge, it suggests a process during which students gain access to knowledge and engage with it. Teachers present disciplinary knowledge in economics as fallible and refutable, and promote the engagement with this knowledge through critical interrogation, creative reasoning and the generation of solutions and ideas of how things can be different.

The arguments relating to powerful knowledge in this literature review are situated within the particular discipline concerned. For example, within the context of history education, Kitson (2021) argues for the need for a more 'big picture history' in the form of broad frameworks that assist the students to orientate themselves in time. An analysis of powerful knowledge in economics needs to be situated within the context of economics as a discipline dominated by the neoclassical school of economic thought.

2. Powerful knowledge in secondary school economics

Powerful knowledge is knowledge which is different from the everyday knowledge and personal experience that students bring to school: it is specialized, has rules and boundaries, and is oriented to more a conceptual form of knowing (Deng, 2018, 2020; Young, 2008, 2018, 2021). Students can start to think in new ways, applying economics knowledge to new and unfamiliar contexts beyond their experience (Brant, 2022).

Following an approach similar to Lambert (2014, 2017b), Maude (2016, 2018, 2020, 2022), Roberts (2013, 2017) and Kitson (2021), I argue that there are two ways of perceiving powerful knowledge in school economics. The first type of powerful knowledge is discipline based, theoretical, part of a system of thought, dynamic, sometimes counter-intuitive, and existing outside the direct experience of the student. The second type of powerful

knowledge derives from this first type of powerful knowledge and gives students the intellectual ability to analyze, explain, predict, evaluate and think about the world in ways that are beyond their personal experience.

2.1. Discipline based knowledge

What economics content is likely to be most powerful? What are the economic concepts that meet the epistemic criteria that powerful knowledge establishes? This is not an easy task (Kitson, 2021; Yates & Millar, 2016). For instance, Yates and Millar (2016) argue that there is no consensus in physics about what content should be included and what should be excluded and the sequencing and pacing of a body of commonly agreed content. Kitson (2021) maintains that 'disciplinary boundaries will inevitably constrain content choices but do not precisely define them: there is too much we could teach' (p.40).

I draw upon the economics threshold concepts that are proposed by the literature (Ashwin, 2015; Davies & Mangan, 2007; Meyer & Land, 2003; Mizzi, 2022; Modig, 2021; Shanahan, 2016), concurring with Modig (2021) that threshold concepts are an 'important resource to be considered when deciding on what economic content students should have access to in school enabling them to face economic issues in their private and public lives' (p.2200). Being developed by economic experts within epistemic communities they constitute powerful economic knowledge from a disciplinary perspective (Modig, 2021). Disciplinary knowledge derived from these communities is a relevant source for identifying important economic knowledge (Roberts, 2013; Young, 2008, 2014a, 2021). It is specialized knowledge that enables the students to think and discuss issues in a new and more well-informed way (Modig, 2021). By transforming the students' perspective of the economic world around them, economics threshold concepts meet the criteria established by powerful knowledge by enabling students access to critical ways of thinking about the economic world which transform their perceptions, values, priorities and behaviour (Ashwin, 2015; Davies & Mangan, 2007; Meyer & Land, 2003; Mizzi, 2022; Modig, 2021; Shanahan, 2016).

When students grasp economics threshold concepts, they proceed to reconfigure ways of classifying economic phenomena and ways of understanding relationships between the respective phenomena. These conceptual aspects of economics knowing become embedded in their thinking, providing access to disciplinary knowledge and understanding in economics that is beyond their everyday experience. A group of threshold concepts may eventually combine to characterize a way of thinking in a discipline (Davies, 2018). This author argues that economic understanding develops as successive threshold concepts are integrated into a scientific framework. The development of the understanding of the discipline is seen in terms of 'an expanding frame of reference as further threshold concepts are incorporated in a structure of thinking' (ibid., p.8).

Economics threshold concepts identified by the literature include opportunity cost, price formation through interaction between markets (including elasticity), marginality and general equilibrium. Opportunity cost is the most emphasized concept (Davies, 2018; Davies & Mangan, 2006, 2007, 2008, 2010; Meyer & Land, 2003; Mizzi, 2022; Modig, 2021; Shanahan, 2016; Shanahan et al., 2006, 2008). It is the foundation of a web of interconnected concepts (Davies & Mangan, 2007), such as the production possibility curve (PPC), consumer choice, demand schedules, the decision to supply, perfect competition, efficiency, comparative advantage, incentives, price signals, and markets generally (Shanahan, 2016). These interconnected concepts include supporting personal concepts which are economically oriented perspectives on everyday life, and procedural concepts consisting of ways of practising or articulating economics. Students may get stuck in their understanding of a threshold concept if these supporting concepts are not sufficiently grasped (Davies & Mangan, 2006, 2007; Shanahan, 2016; Shanahan et al., 2006).

2.2. Expressions of powerful economics knowledge

Young defines powerful knowledge as that knowledge that provides students with the intellectual ability to analyze, explain, predict, evaluate and think about the world in ways that are beyond their personal experience (Young, 2013, 2014b, 2021). This section focuses on aspects of economics knowledge which are derived directly from this definition, describing the types of economics knowledge that might be considered powerful.

Disciplinary knowledge in economics empowers students to grow aware of the grips of mainstream economics, perceive models as explanatory devices, explore reality, develop criticality of thought in framing economic problems, mature in financial and economic literacy, and consider the moral dimension of economics (Mizzi, 2021a, 2021b, 2022, 2023). In this manner, the discipline empowers the students to move beyond their everyday knowledge and experiences and provide new ways of looking at the world. Such disciplinary knowledge becomes a resource for the development of students' intellectual and moral powers or capacities (Deng, 2018, 2020, 2022). I concur with Modig (2021) 'that acquiring in-depth economic knowledge provides people with powerful economic knowledge, enabling them to better act in, understand, discuss and question the prevailing system' (p.2204). I conceive the following expressions of powerful economics knowledge.

Expression 1: Knowledge that provides students with a deeper understanding of the economic world around them

Economics knowledge is powerful when it enables students to better understand and explain phenomena or events happening in the economic world, particularly those that are beyond their personal experience (Young, 2013, 2018, 2021). It is powerful when it provides an explanatory function to help young people better understand important economic issues (Brant, 2011, 2015; Brant & Panjwani, 2015; Spotton Visano, 2019). It provides them with a distinctive way of perceiving the world through an economic lens, enabling them to make informed choices as consumers, citizens and workers (Brant, 2011, 2015; Davies & Brant, 2006; Grant, 2006; Jephcote, 2005; Jephcote & Abbott, 2005; Krueger, 2019; Mizzi, 2021a, 2021b, 2023; Skidelsky, 2020).

Economic models are a useful tool in helping students to critically explore, understand and explain reality better. These models need to be perceived as providing an explanatory function and not as truth in themselves. By first exploring reality through discussions contextualized with relevant examples from the real world and the teachers' and students' life, students critically engage with these models which they perceive as assisting the identification and understanding of the structures, powers, mechanisms and tendencies which produce or facilitate economic phenomena (Brant, 2011, 2015; Skidelsky, 2020). The threshold concept of price formation through interaction between markets, for example, helps students better understand the forces of demand and supply which influence prices and the decisions of firms. Krueger (2019) illustrates how this model sheds light upon the various pricing decisions regarding concert tickets. Another example is when teachers teach the law of demand. They tend to present the demand curve as if it is an entity in itself (Figure 1), formulating that when price rises demand falls and vice versa. It might be presented in such a way that students have to accept this 'law' uncritically. Another approach is for teachers to bring an object in class, such as a chocolate bar, and ask their students how much they are willing and able to buy at each price, gradually constructing together the demand curve from real data. Teachers can then organize their students in groups and provide guiding questions with the aim of eliciting the forces and tendencies that underpin the demand curve. Students can be invited to consider, for example, 'Why do I still buy an ice cream on a hot day even though the price is high, thus contradicting the law of demand?' and 'What is the nature of the commodity?' The aim of the discussion is to clarify that the model is not truth in itself but a tool that assists the understanding of the mechanisms and forces that underpin demand in the different markets around us.

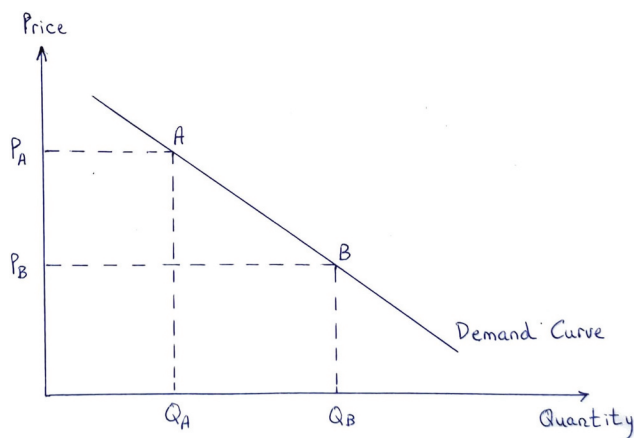


Figure 1. Demand curve

Expression 2: Knowledge that equips students with new ways of thinking about the economic world

Based on the discipline's major concepts and their application, economics knowledge empowers students to think in new ways about the economic events and phenomena happening around them. Such knowledge provides students with critical ways to analyze, explain and understand economic situations. It provides an explanatory function to help students understand better and improve the world in which they live.

Teachers assist their students to explore the powers, generative mechanisms and tendencies that contribute to the production of some identified economic phenomenon of interest. Students are helped to proceed from the knowledge of a phenomenon existing at any one level of reality to a knowledge of mechanisms at a deeper level of reality, which contributed to the generation of the original phenomenon of interest (Bhaskar, 1979, 2017). They are accompanied to move 'from a "surface phenomenon" to some "deeper" causal thing' (Lawson, 1997, p. 23), from a level of reality that they understand to the level of what explains them, which at any moment of time they might not have been understanding them (Alderson, 2021; Bhaskar, 2017). They can then be able to propose sound explanations. I illustrate by referring to the 'price' of a commodity. This is 'generated by processes that we do not directly experience but which we can model or imagine through our reasoning' (Davies & Brant, 2006, p. 114). A school economics syllabus usually refers to 'supply curve', 'demand curve' and 'equilibrium'. However, buyers and sellers do not directly experience these. Students are accompanied by their teachers to think critically about the processes and generative mechanisms underlying these ideas. They can understand that 'the actual reality that gives rise to these processes lies a step further removed from our experience, essentially unreachable, but that does not mean that we are not influenced by its nature' (ibid.). They can interact with the economics knowledge proposed by the syllabus, understanding better the social structures, powers, mechanisms and tendencies that are responsible for the actual course of economic events and states of affairs. This classroom climate tends to consolidate economics' position as 'an explanatory social science that attempts to address highly complex financial and social issues that face the world in which we live' (Brant, 2015, p. 10).

Orthodox economists perceive individuals from an egocentric point of view and abstract from social relations (Brant, 2011, 2015; Chang, 2014; Skidelsky, 2020). I argue that teachers can empower students to perceive persons conducting their economic behaviour whilst socially interacting with others and caring for them. For example, students can then start perceiving individuals conducting

their economic choices whilst embracing and fostering values, and being compassionate towards other human beings (Mizzi, 2023). As an example, orthodox economists contend that a producer reduces the amount of workers employed when the marginal cost (MC) is greater than the marginal revenue product (MRP) because the profit-maximizing point has been achieved. Teachers help their students to be aware and challenge this idea of perceiving workers as resources that could be disposed of, and cultivate an attitude towards valuing the firm's labour force by providing good working conditions and long term job security (ibid.).

By enacting a curriculum that challenges the neoclassical orthodoxy, teachers cultivate a learning environment where their students learn to develop their thinking about how to criticize the conception of homo economicus, which underpins the models of mainstream economics. They are enabled to challenge the idea of this 'human calculating machine' who is 'continually calculating how to get the most ("maximum") gain he can for the least cost' (Skidelsky, 2020, p. 8), and is regarded to respond to economic interventions in a predictable way. Teachers help their students to challenge the notion of homo economicus as the passive receptor of events, and to start perceiving him/her as a person who can exercise real choice and imagination (Chang, 2011, 2014; Lawson, 1997) and who therefore does not fit into static economic models. So, for instance, referring to the example in the previous paragraph, students start discussing stories of employers who during the Covid-19 pandemic decided not to dismiss workers although their sales revenue had fallen drastically. Young people thus conceive the moral dimension infused into economics, in this case, employers who care for their labour force and do not follow the suggestion of the economic model to dismiss workers.

When students acquire disciplinary knowledge in economics and the ability to be critical of the neoclassical orthodoxy, they can learn to contextualize economics socially, historically and politically. They can realize that 'economics doesn't exist in isolation from society, but is embedded in the social system and relates to many spheres. Decisions made by individuals, firms and governments will affect other individuals, society and the environment' (Brant, 2015, p. 13). By perceiving economics in its context as a social science, students can criticize the tendency of mainstream economics to 'model the world as a giant computer network in which every possible move has been programmed, and anything outside the frame excluded by assumption' (Skidelsky, 2020, pp. 3-4). Young people can start to consider 'new ways of economic thinking that better incorporate humanitarian and ecological values into the economic system' (Modig, 2021, p. 2201). This brings back into economics its moral dimension (Brant, 2015; Brant & Panjwani, 2015; Chang, 2014; Mizzi, 2022, 2023; Ranson & Baird, 2009; Sober-Giecek, 2000). Students can start to think in new ways when evaluating an economic argument by considering which moral values and political goals are involved, the role of power in shaping economic relations, real-world structures, social decline, and the effects of widespread wars, the Covid-19 pandemic, famines and other miseries. They can also challenge the status quo thinking that the discipline is value-free (Aldred, 2009, 2019; Brant, 2011; Chang, 2014; Fine, 2010); their arguments start to give due consideration to values such as love, justice in the distribution of wealth and income, courage, honour, loyalty, and public service (Chang, 2014; Ranson & Baird, 2009; Sober-Giecek, 2000). Consequently, their reasoning of economic issues may not require them 'to squeeze their explanations of human behaviour into absurdly narrow channels' as mainstream economists are accused of doing (Skidelsky, 2020, p. 9).

Expression 3: Knowledge that enhances students' criticality of thought in economic issues and their participation in economic debates

Powerful knowledge 'allows those with access to it to question it and the authority on which it is based and gain the sense of freedom and excitement that it can offer' (Young, 2014b, p. 20). It enables students to evaluate claims about knowledge itself, giving them the opportunity to be independent thinkers who can be critical of the opinions of others including those of people in authority positions.

Young people can grow aware of the state of affairs of economics and economics education dominated by the neoclassical economics orthodoxy (Mizzi, 2022). Students start to recognize the

grips of the dominant school of economic thought. They are not trapped by it, but are empowered to criticize this outdated paradigm where the status quo is accepted (Lawson, 1997; Piketty, 2014), trying to ‘persuade you to see the world’ as it does (Skidelsky, 2020, p.xi), and theories are taken and presented as facts, without answering ‘the far more complex questions posed by the world we live in’ (Piketty, 2014, p. 41).

Students start to critically consider different schools of economic thought, and participate in discussions over a range of perspectives on the economy. I concur with Brant and Panjwani (2015) that when students consider ‘alternative conceptualizations of the workings of the economy’ they can mature in their ‘ability to adequately understand the world in which they live and their capacity to contemplate alternatives’ (p.307). By considering an overview of the history of economic thought, students can broaden their awareness that there are approaches to economics other than the dominant neoclassical approach of a market economy dominated by neoclassical models. It is important that students are exposed to the historical background of economics because it illustrates how ‘economic doctrines, far from being the universal truths they claim to be, are connected to particular historical conditions and episodes’ (Skidelsky, 2020, p. 13).

During their economics course, young people can grow familiar with the ways economics knowledge is constructed, tested and evaluated. Keeping in mind that the positivist conception of science is uncritically accepted in much of mainstream economics, they are likely to be able to criticize the economics content proposed to them. They are enabled, for example, to discuss the unrealistic attempt of mainstream economics to construct a set of universal laws applicable to all economic situations and problems. They realize that orthodox economics, being unable to validate its most important hypotheses empirically, tends to slide into ideology (Lawson, 1997; Piketty, 2014; Skidelsky, 2020), facing the temptation of continuing ‘to churn out purely theoretical results without even knowing what facts needed to be explained’ (Piketty, 2014, p. 40). Students can start criticising outdated theory and static neoclassical economic models falling in the category of ‘zombieconomics’ (Fine, 2010).

Young people are more likely to become active participants in their own learning, gradually maturing into critiquing and debating existing theories, gaining insights, and forming their own views about how the economy works (Brant, 2015; Brant & Panjwani, 2015; Chang, 2011, 2014; Dow, 2009; Jephcote, 2004, Spotton Visano, 2018, 2019). It is likely that their criticality of thought is enhanced and their perspectives in relation to economics broadened, potentially dislodging the dominance of mainstream economics. To illustrate how this process can happen, I discuss an example relating to the production possibility curve (PPC). This model illustrates the concepts of scarcity and the opportunity costs of choices when faced with the possibility of producing two commodities (Figure 2). Points inside the curve are inefficient, points on the PPC are efficient, and points outside are unattainable. Moving from one efficient combination of production (e.g. point B) to another efficient combination of production on the PPC (e.g. point D) entails an opportunity cost. This is how much of one commodity is given up in order to get more of the other. Teachers might lead their students to accept this static neoclassical theory, conceiving the PPC as an entity in itself. Within this learning environment, teachers and students accept economic models and “laws” uncritically, influenced by the “certainty” in which they are presented’ (Brant, 2015, p. 14). However, teachers can invite their students to critically engage with the model and criticize its assumptions, such as that of assuming a ‘world’ of two goods (butter and guns) without a time dimension, which render the model as unrealistic and abstracted from the real world. Teachers can educate their students to perceive this model underpinned by the threshold concept of opportunity cost as a tool that explains the unseen economic forces and mechanisms at work.

Students are likely to become empowered ‘how to think, rather than what to think’ (Chang, 2014, p. 6). Economics education starts to educate them ‘in judgement’ (Dow, 2009, p. 48) and in choosing ‘their own approach and address alternatives as they become practising economists’ (ibid., p.54), becoming ‘good critics of economic policy’ (Sober-Giecek, 2000, p. v). They seek to find out what is really going on, collecting and analysing economic data in an attempt to critically judge issues and

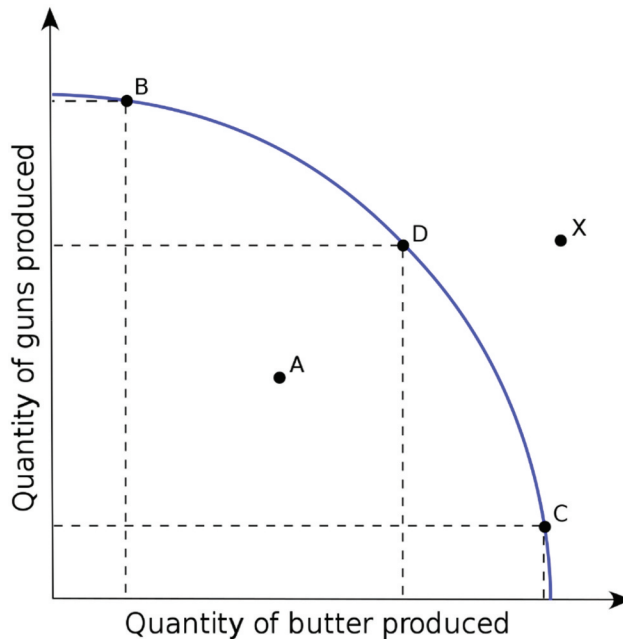


Figure 2. The production possibility curve

official statistics whilst understanding the basis for their own judgements. They can start to evaluate the decisions of their policy-makers and to voice their opinion. Chang (2014), for instance, highlighted the need of educating young people not to ‘accept statistics unthinkingly’ (p.455). Students may acquire the freedom ‘that results from the possibility to detect faulty arguments or propaganda—and the freedom to discern and value “better” knowledge’ (Lambert, 2017a, p. 141). I concur with Lambert (2017a) and Maude (2016) that these are ‘effects or outcomes that can be described as powerful’ (ibid., p. 71).

3. Conclusion

The aspects of powerful knowledge in school economics education discussed in this paper are illustrated in Figure 3. This is the contribution to knowledge of this paper: extending the theory of powerful knowledge to school economics and articulating what constitutes powerful disciplinary knowledge in the subject.

This is a powerful knowledge curriculum that can assist young people to engage with powerful knowledge in economics. By being aware of what constitutes powerful knowledge in the subject, economics teachers can enhance the powerful disciplinary knowledge in the curriculum they enact. The key to enacting this curriculum is a careful balance between aspects of economics thinking and a strong underpinning of substantive knowledge. This is ‘the balancing act that teachers juggle every day’ (Kitson, 2021, p. 39).

A powerful knowledge economics curriculum concentrates on cultivating young people’s agency by developing their grasp of ‘the powers of knowledge’ (Young, 2021). Teachers and students engage with a knowledge-led curriculum where economics knowledge is not static but dynamic, contested and changing (Mitchell & Lambert, 2015). This curriculum of engagement is characterized by ‘engagement with the subject’s ideas—and therefore heavily reliant on specialist teachers taking responsibility to find ways to engage all young people, in some intellectually defensible manner, with those ideas’ (Lambert, 2019, p. 173). Teachers think hard how to engage their students ‘with

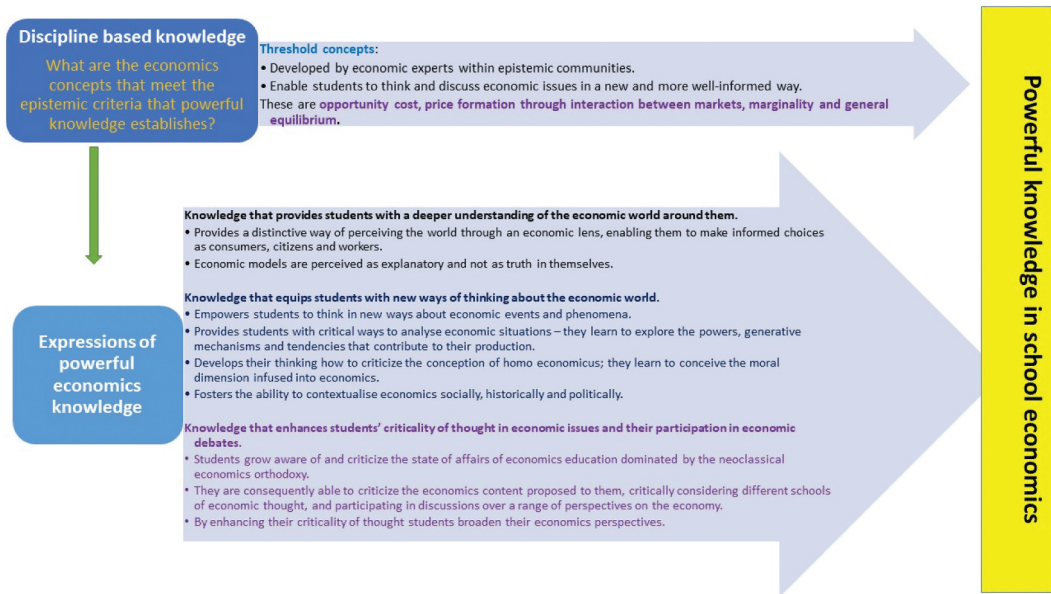


Figure 3. Powerful knowledge in school economics

complexity, with theoretical knowledge, with knowledge that appears counterintuitive or at least contradicts the common sense and the everyday' (Lambert & Biddulph, 2015, p. 221). This contrasts, for example, with a curriculum of compliance where knowledge is given, uncontested or predetermined, such as when students are just presented with static neoclassical economic models as facts with no possibility to interact with the ideas involved. Whilst involving the social and cultural capital and values that students bring to their lessons, teachers engage them with knowledge that once grasped, enriches them with powerful economics knowledge, 'actualizing the potential of the subject in classrooms' (Deng, 2022, p. 610). Such a curriculum can provide the students with the conceptual knowledge that emphasizes the cultivation of understanding based on the discipline's major concepts and their application, and foster 'the formation of autonomous and responsible individuals who can thrive and flourish in the present and future world' (ibid., p. 612).

Other authors may propose other visions of what may constitute powerful knowledge in school economics. Ideas about what powerful knowledge in a subject may look like are debateable, and there will often remain scope for strengthening and refining conceptualizations (Chapman, 2021a, b; Kitson, 2021). Further research can contribute in these directions.

By identifying what makes school economics powerful for young people, an argument is made for the subject's inclusion in a school's curriculum. Young people are entitled to an education that enables them access to economics knowledge that is empowering in developing their capabilities and agency to make informed choices when they reach their adult lives. Since the concept of powerful knowledge in economics identifies the types or expressions of economics knowledge that contribute to the development of the intellectual powers or capabilities of students, it can help address the challenge of communicating the educational value of learning economics to those persons who are not in the discipline. These include prospective students, policy makers and education administrators who make decisions about the subject. For instance, the expressions of powerful knowledge can support the proposals to education administrators to acknowledge economics as powerful disciplinary knowledge and introduce the subject in a school's curriculum. The theory of powerful knowledge is powerful in addressing the challenge of communicating the educational

benefits of grasping knowledge that can only be acquired by providing students with the opportunity to learn economics. This epistemic access enables young people to foster their human development and flourishing.

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