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## DEFINING DOCTORATENESS: A CONCEPT ANALYSIS

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### ABSTRACT

Aim/Purpose	This study analyses the concept of doctorateness and its defining characteristics and gives a definition for it by examining the various ways it is used in doctoral education literature.
Background	The term 'doctorateness' is an immature unclarified concept referred to as a common quality for all doctoral awards. With the emergence of different types of doctoral studies worldwide, a clear definition for this concept is a requirement. Defining doctorateness can result in major implications for research and the practice of doctoral education, as determining attributes of doctorateness will pose serious expectations regarding standard setting for the process and outcome of doctoral programs and requirements of doctoral students.
Methodology	In this study, Walker and Avant's eight step method of concept analysis is used. The method is a systematic approach frequently used to analyze relatively new concepts.
Contribution	The current study moves beyond the earlier studies by isolating defining attributes of the concept and giving a clear conceptual definition for doctorateness.
Findings	Five defining attribute of doctorateness refined from literature include independent scholar, developmental and transformative apprenticeship process, original conceptual contribution/scholarship, highest academic degree, and stewardship of the discipline. Based on the defining attributes a definition is formulated for the concept of doctorateness. In addition to giving a definition a conceptual model consisting of five conceptual areas of purpose, process, product, prerequisite, and impact according to the usage of concept in the literature is also presented.

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Recommendations for Practitioners	By using the conceptual model and defining attributes presented in this study practitioners and professionals in doctoral education can study the effective design for doctoral programs and utilize the definition as a basis for evidencing doctoral awards.
Future Research	Defining attributes can also contribute to psychometric researches related to tool development and constructing tools with explicit criteria for doctorate judgment.
Keywords	doctorateness, definition, concept, doctorate, doctoral education, model

## INTRODUCTION

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The term ‘doctorateness’ is a young elusive concept recently entered into the doctoral education literature (Poole, 2015). Denicolo and Park (2013) considered doctorateness as a common quality necessary for all doctoral awards, but that achieving a doctoral award does not always imply demonstrating doctorateness. What factors are necessary for demonstrating doctorateness? Is doctorateness about product or process? Is doctorateness acquired by the student? Can its achievement be measured by a scale? An analysis of the nature of doctorateness is an imperative for answering these questions.

Searching for the inner essence of doctorateness has been encouraged by earlier authors. Almost a decade ago, Park (2007, p. 9) suggested that it was the right time for a debate on the nature of the doctorate, and that in this debate the essence of doctorateness was a key theme. Denicolo and Park (2013) believed that joining this debate is a must for current examiners and supervisors of doctorates. Debates around the essence of doctorateness and its definition bring with it ideas about what evidence and criteria should be used for judgments about a doctorate. As Wellington (2013) argues:

The question of what constitutes doctorateness is not merely ‘some sort of semantic exercise’ but a matter of consequence, since conceptions of doctorateness will exert an influence on, for instance, how viva voce examinations are conducted, on what kinds of questions are asked in the viva, and on ways in which examiners evaluate doctoral dissertations (p. 1491).

### *RELATED WORK*

From the beginning of the twenty first century, research on doctorateness has been a growing field. At the end of twentieth century for the first time the term doctorateness appeared in a limited number of sources. Fraying (1997) believed that the essence of doctorateness is about an informed peer consensus on mastery of depth and breadth of the subject and that consensus also implies the ability to communicate both types of mastery – within the contribution itself, and in defense of it in appropriate forms (Fraying, 1997). For Thorne (1999) doctorateness or ‘doctoral capability’ was a concept not debated in the literature, and she examined meaning of doctorateness from doctoral students’ perspectives by asking “what characterizes a doctoral graduate.” She concluded that the most important common capability characterizing doctorate for doctoral student was independence. In 2002 Trafford and Leshem introduced a new interpretation of this term as a set of critical questions asked by examiners during doctoral oral defense.

Although other related concepts such as ‘doctorate’ have been in use for a long time, doctorateness as a concept remains immature. According to Morse, Hupcey, and Cerdas (1996), a concept is considered immature when its definition lacks clarity and the concept boundaries are unknown. Doctoral education literature lacks a clear conceptual definition for doctorateness that is applicable in research and practice. Therefore, a major step towards theory development would be the analysis of this new and immature concept that is not yet grounded in a pre-existing theory (L. O. Walker & Avant, 2005). Ambiguity regarding the definition of doctorateness would bring empirical problems about evaluation of the doctorate degree. Results of this concept analysis will help in determining an operational definition that can be used in constructing assessment tools. Conceptualization of this concept yields a basic understanding of the underlying attributes of doctorateness and provides the theoretical basis

necessary for operational planning and assessment criteria for doctoral education. Thus, the importance of providing a set of criteria for quality assessment of doctoral education accounts for the selection of this concept for examination.

According to Rodgers and Knafl (2000), concepts are essential for the development of knowledge, since concepts are the “building blocks from which theories are constructed.” For doctorateness as a new and emerging concept, concept analysis can be considered a method of choice. To give a clear definition for doctorateness and its defining characteristics requires an analysis of the concept through integration of what is known about it at this particular point in time. The purpose of this study is to analyze the concept of doctorateness and to give a definition in order to bring clarity to the meaning of the term by examining the various ways it is used in doctoral education literature. This clarification will be accomplished by examining the literature and the various ways the term has been used.

## METHOD

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McMillan and Schumacher (1997) proposed conceptual analysis as a strategy for clarification of the educational concept meaning and refer to it as a “study that clarifies the meaning of a concept by describing the essential or generic meaning, the different meanings and the appropriate usage for the concept” (p. 472). Concept analysis as a research methodology has been reported in different disciplines such as linguistics, business management, nursing, and education (Nuopponen, 2010). The methodology is considered a formal and rigorous process for concept clarification and theory development in nursing (McKenna, 2006; L. O. Walker & Avant, 2005). L. O. Walker and Avant (2005) believed concept analysis is a good way to begin to understand logical thinking related to terms and their definitions and uses in theory development. This method is a formal, linguistic exercise to determine defining attributes of a concept. By carefully defining the attributes of the concepts used in theory development and research, understanding about the phenomena under discussion will be promoted and communication is encouraged (L. O. Walker & Avant, 2005). Showing the requirements of rigor and scholarship in concept analysis, Baldwin and Rose (2009) emphasized the appropriateness of it as a research methodology. They compared the steps in this method with a classic research method and concluded that as a systematic and scientific enquiry this method can expand the body of knowledge in a discipline (Baldwin & Rose, 2009). Concept analysis has been widely used for the study of concepts such as quality of life, trust, pain, risk, and confidence/self-confidence (Cheng, Foster, & Huang, 2003; Hupcey, Penrod, Morse, & Mitcham, 2001; Meeberg, 1993; Perry, 2011; Shattell, 2004). Different approaches for concept analysis have been introduced by Rogers (1989), L. O. Walker and Avant (2005), Morse, Hupcey, and Cerdas (1996) and Schwartz-Barcott and Kim (2000).

In this study, the Walker and Avant method (2005) was used for analysis of the concept of doctorateness as it provides a systematic approach to analyze relatively new concepts. The method is based on the concept analysis method described by John Wilson in his basic text book on concept analysis from 1963. The method is considered to be the most frequently utilized method in nursing (Fitzpatrick and McCarthy, 2016; Nuopponen, 2010) and consists of the following steps: (1) selecting a concept; (2) determining the purpose of analysis; (3) identifying all uses of the concept; (4) determining the defining attributes; (5) identifying the model case; (6) identifying additional cases (borderline, related, and contrary cases); (7) identifying antecedents and consequences; and (8) defining empirical referents (L. O. Walker & Avant, 2005).

Walker and Avant (2005) reminded that although the steps are numbered as a sequential process, they have in fact an iterative nature and revisions are needed to be made in earlier steps because of information or ideas arising from later ones. For the first step Walker and Avant (2005) suggested that, while concept selection should reflect researcher’s greatest interest and most critical to her needs, it should be a manageable concept and not too primitive or broad. Distinguishing between the normal, ordinary language usage of the concept and the scientific usage of the same concept, clarifying the

meaning of an existing concept, developing an operational definition, developing a research instrument, or adding to existing theory are all purposes mentioned by Walker and Avant (2005) for the second step of concept analysis. For identifying uses of the concept both implicit and explicit they suggest using dictionaries, thesauruses, colleagues, and available literature to identify as many uses as possible. According to Walker and Avant (2005) review of literature provides the evidence base for analysis and validates choices of the defining attributes.

To include all scientific uses of the concept both implicitly and explicitly in our study, a literature review was conducted. Extensive reading of the literature has been considered invaluable in this step by Walker and Avant (2005). According to Morse et al. (1996), an in-depth literature review is intrinsic to concept analysis, and a critical analysis of the literature can represent the entire approach to concept analysis. For this analysis, the literature review was conducted in common databases and relevant websites (ERIC, Pub Med, Web of science, Google Scholar) using appropriate keywords including 'doctorateness', 'doctorate' and 'doctoral education'. Although the term originated recently, the search was conducted with no time limit as sources with related keywords might be traced from older literature.

In the initial search, about 400 articles were found. In order to eliminate unrelated resources, a first screening was carried out. The titles and abstracts of the retrieved records were studied and the relevant articles addressing the meaning and attributes of the concept were selected for further assessment. A wide range of studies with no specific methodological standards, including research articles, book chapters, abstracts of dissertations, proceedings, governmental documents, and other 'grey' literature were examined to select the most relevant papers. Citation searching (forward and backward) was conducted after reading each relevant article.

The review was conducted by analyzing the content and concepts of the text, identifying recurring themes, their main components and then finding how they interrelate and influence each other. The review was repeated until a point of data saturation was reached, where no further perspectives or schools of thought were added by further acquisition of articles. Among the limitations of this search, the use of English language articles exclusively and the lack of access to some databases must be mentioned.

## RESULTS

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In total, we found 82 published articles, reports, documents and books on the concept originated mostly from UK, US, Europe, and Australia that were included in the analysis.

### *USES OF THE CONCEPT*

The definition of the term 'doctorateness' does not appear in dictionaries. However, 'doctorate' can be found in almost all dictionaries with the concise meaning of "the highest degree awarded by the university." Apart from dictionaries, efforts to give a definition for 'doctorateness' appear in the doctoral education literature but no straight answer can be found. In fact, difficulty in giving a definition for this concept has been emphasized by earlier authors (Denicolo & Park 2013; Poole, 2015; Wellington, 2013).

The concept of 'doctorateness' and the meaning of this exact term have been exclusively mentioned in a few articles by Trafford and Leshem (2008), Denicolo and Park(2013), Wellington (2013), and Poole(2015). According to Trafford and Leshem (2008) doctorateness is a jigsaw puzzle that can be appreciated when all the components are present and fitted together. In a stepping stones model, they describe the 12 elements of research activity in the thesis as pieces of this puzzle, and doctorateness becomes apparent when synergy within these elements is displayed. They also emphasize the importance of conceptualization and conceptual frameworks in the thesis as a sign of doctorateness (Leshem & Trafford, 2007).

For Denicolo and Park (2013) this synergy is a necessary but not sufficient criterion on which to base judgements of doctorateness. They defined doctorateness in terms of the qualities required of a person as well as the doctoral output or thesis:

Perhaps not surprisingly, the difficulty of articulating what is meant by the term ‘doctorateness’ is a reflection of the mix of qualities required of a person who has or is acquiring doctorateness, including such things as intellectual quality and confidence, independence of thinking, enthusiasm and commitment, and ability to adapt to changing circumstances and opportunities (p. 193).

The stepping stones model (Trafford & Leshem, 2008) outlines the key ingredients of a successful doctorate, which is very useful for doctoral students, ..., but these are necessary but not sufficient criteria on which to base judgements of the doctorateness of any particular piece of research, because the whole is greater than the sum of the parts (p. 194).

They suggest the Researcher Development Framework as an appropriate tool for evidencing doctoral graduate attributes (Denicolo & Park, 2013). This framework is a matrix of knowledge, behaviors, and attributes that is expected of successful researchers at different stages of their career with the first two stages relevant to doctoral graduate attributes.

Wellington (2013), in his article “Searching for Doctorateness,” believes that to search for a single common meaning belonging to all doctorates is rather like looking for the Holy Grail. Instead of looking for an inner core meaning or essence of the term, he suggests looking at various aspects of doctoral education including five areas – the purposes of doctoral study; the impact of doctorates; written regulations for the award of the doctorate; the examination process; and the voices of those involved in it – to find implicit and explicit criteria for doctorateness. He also believes that the very notion of ‘contribution’ without adjectives like ‘original’ and ‘publishable’ is a necessary quality (although not sufficient) for doctorateness.

Poole (2015) critiqued Wellington’s arguments and believed that progress has already been made towards describing the nature of doctorateness. He suggested that further debate around whether doctorateness should be seen as residing in doctoral dissertations, doctoral candidates, or both will promote the conceptualization of doctorateness. Unlike Wellington, he believes that the amount of publishable material for reputable journals in a dissertation is a utilitarian scale for measuring the doctorateness of a thesis. Few other articles in creative, art, and design disciplines have assessed the concept in terms of practice based approaches (Nilsson & Dunin-Woyseth, 2013; Stock, 2011).

In “Redefining the doctorate,” Park (2007) paraphrased the essence of ‘doctorateness’ as factors that must be present for any particular degree to fit into the category, or factors that allow us to discriminate between a doctorate and other degrees. Therefore, to elicit these factors a review of key features and attributes of the concept ‘doctorate’ in the literature seemed necessary. From the very beginning a clear distinction of product and process can be considered in the literature, with those referring to the idea of original contribution to knowledge as the most important criterion of doctoral product. In fact, scholarship has been expressed by many as the heart of the doctorate (Joint Quality Initiative [JQI], 2004); Quality Assurance Agency for Higher Education [QAA], 2011; Weisbuch, 2005). Frequent usage of terms such as doctoral journey (Wisker et al., 2010), rites of passage, and doctoral liminality (Keefer, 2015), as well as the importance particularly on concepts such as apprenticeship, as signature pedagogy of doctoral education (Golde, Bueschel, Jones, & Walker, 2006), emphasize the developmental and transformational process of the doctorate. From the literature review, the pattern of usage of the concept can be categorized in five conceptual areas, summarized into categories and subcategories as shown in Table 1.

**Table 1. Conceptual area (categories and subcategories) used in doctorateness concept analysis**

Category	Subcategory	Attribute	Citation
<b>Purpose</b>		Scholarship	(Biggs, 2000); (Nerad & Heggelund, 2008a); (Sadlak, 2004); (Park, 2005); (Wellington, 2013); (QAA, 2011); (G. E. Walker, Golde, Jones, Bueschel, & Hutchings, 2008); (Australian Qualifications Framework Council [AQF], 2013); (Chambaz, Baudet, & Collonge, 2006); (Weisbuch, 2005); (Wellington, et al. 2005); (Stock, 2011); (Trafford & Leshem, 2008); (Taylor & Beasley, 2005); (Boud & Lee, 2009); (Thomson & Walker, 2010); (G. E. Walker et al., 2008)
		Stewardship	(Park, 2005); (G. E. Walker et al., 2008); (Phillips, Stock, & Vincs, 2009)
		Position in academic /professional community	(Park, 2005); (Poole, 2011); (Wellington, 2013); (QAA, 2011); (Nilsson & Dunin-Woyseth, 2012); (Wellington et al., 2005); (Taylor & Beasley, 2005); (Petre & Rugg, 2010); (Thomson & Walker, 2010)
		Personal growth	(Biggs, 2000); (Wellington, 2013); (Mowbray & Halse, 2010)
<b>Process</b>	(Nilsson & Dunin-Woyseth, 2013); (Park, 2005); (Wellington, 2013); (Baptista et al., 2015); (Bitzer, 2014); (Kandiko & Kinchin, 2012); (Shaw & Green, 2002); (Ritzman, Koehler, VanBuskirk, & Hershauer, 2000); (van Schalkwyk, Murdoch-Eaton, Tekian, van der Vleuten, & Cilliers, 2016); (Boud & Lee 2009)		
		Apprenticeship/supervision	(Park, 2007); (Biggs, 2000); (Sadlak, 2004); (Melin & Janson, 2006); (Park, 2005); (Boud & Lee, 2009); (Wellington, 2013); (Kehm, 2006); (G. E. Walker et al., 2008); (Jones, 2013); (Taylor, 2011); (Taylor & Beasley, 2005); (Nilsson & Dunin-Woyseth, 2013); (Campbell, Fuller, & Patrick, 2005), (QAA, 2011); (Nerad, 2012); ([AQF], 2013); (Jazvac-Martek, Chen, & McAlpine, 2011); (Griffiths, 1995); (Wellington et al., 2005); (van Schalkwyk et al., 2016); (G. E. Walker et al. 2008); (Council of Graduate Schools [CGS], 2005); (Zhao, Golde, & McCormick, 2007); (Anderson, Cutright, & Anderson, 2013)
		Developmental/Transformational	(Biggs, 2000); (Sadlak, 2004); (Park, 2005); (Wellington, 2013); (QAA, 2015); (G. E. Walker et al., 2008); (Nerad & ネラッド, 2015); (Keefer, 2015); (Kandiko & Kinchin, 2012); (Wisker et al., 2010); (Sweitzer, 2009); (Petre & Rugg, 2010); (Carter & Laurs, 2014); (Pérez, Fain, & Slater, 2011)

Category	Subcategory	Attribute	Citation
		Socialization	(Jones, 2013); (Melin & Janson, 2006); (Wellington, 2013); (G. E. Walker et al., 2008); (Nerad 2012); (McAlpine, Jazvac-Martek, & Hopwood, 2009); (Wellington et al., 2005); (Floresh-Scott & Nerad, 2012); (Holley, 2009); (Sweitzer, 2009); (Boud & Lee, 2009); (Parry, 2007); (CGS, 2005); (Weidman & Stein, 2003); (Austin, Kruger, Gardner, & Mendoza, 2012); (Anderson et al., 2013)
		Experience	(Nerad & ネラット, 2015); (Chambaz et al., 2006); (Griffiths, 1995); (McAlpine et al., 2009); (Pearson, Evans, & Macauley, 2015)
		Formal	(QAA, 2015); (Archbald, 2011)
		Lengthy	(Nerad & Heggelund, 2008a); (Sadlak, 2004); (Kehm, 2006); (Bitzer, 2014); (Archbald, 2011); (Weisbuch, 2005); (Wellington et al., 2005); (Trafford & Leshem, 2008); (van Schalkwyk et al., 2016); (Ehrenberg, Jakubson, Groen, So, & Price 2007)
<b>Product</b>			(Nilsson & Dunin-Woyseth, 2013); (Melin & Janson, 2006); (Park, 2005); (Wellington, 2013); (Baptista et al., 2015); (Kandiko & Kinchin, 2012)
	Graduate (Independent Scholar)		(Poole, 2011); (Campbell et al., 2005); (Sadlak, 2004); (Melin & Janson, 2006); (Park, 2005); (G. E. Walker et al. 2008); (Baptista et al., 2015); (Denicolo & Park, 2013); (Dimitrov, 2012); (Chambaz et al., 2006); (QAA, 2011); (Griffiths, 1995); (van Schalkwyk et al., 2016); (Boud & Lee, 2009); (Thomson & Walker, 2010); (CGS, 2005)
		Doctoral competence	(Melin & Janson, 2006); (Park, 2005); (Wellington, 2013); (Bitzer, 2014); (Nilsson & Dunin-Woyseth, 2013); (Archbald, 2011)
		Research skills	(Jones, 2013); (Park, 2007); (Biggs, 2000); (Nilsson & Dunin-Woyseth, 2013); (Sadlak, 2004); (Melin & Janson, 2006); (Park, 2005); (QAA, 2011); (Nerad, 2012); (QAA, 2011); (AQF, 2013); (Shaw & Green, 2002); (JQI, 2004); (Pitt et al., 2008); (Taylor & Beasley, 2005); (Burgess, Sieminski, & Arthur, 2006); (Mowbray & Halse, 2010); (Boud & Lee, 2009); (Petre & Rugg, 2010); (G. E. Walker et al., 2008); (Vitae, 2010); (Bologna Working Group on Qualifications Frameworks, 2005); (Polzichn, 2011)
		Disciplinary Knowledge mastery	(Park, 2007); (Nilsson & Dunin-Woyseth, 2012); (Nilsson & Dunin-Woyseth, 2013); (Falbot, 2012); (Sadlak, 2004); (Melin & Janson, 2006); (QAA, 2011); (Nerad, 2012); (AQF, 2013); (Shaw & Green, 2002); (Weisbuch, 2005); (JQI, 2004); (Wellington et al., 2005); (Burgess et al., 2006); (Petre & Rugg, 2010); (Thomson & Walker, 2010); (G. E. Walker et al. 2008);

Category	Subcategory	Attribute	Citation
		Higher order thinking skills (HOTS)	(Nilsson & Dunin-Woyseth, 2013); (Campbell et al., 2005); (Wellington, 2013); (QAA, 2015); (Nerad, 2012); (AQF, 2013); (Bitzer, 2014); (Leshem & Trafford, 2007); (Shaw & Green, 2002); (Rose, 2012); (JQI, 2004); (Stock, 2011); (Mowbray & Halse, 2010); (Thomson & Walker, 2010); (CGS, 2005); (Vitae, 2010); (Brodin & Frick, 2011); (Brodin, 2015); (Polziehn, 2011)
		Teaching skills	(Jones, 2013); (Campbell et al., 2005); (Nerad & Heggelund, 2008a); (Park, 2005); (QAA, 2015); (Short 2013); (Weisbuch, 2005); (Rose, 2012); (Ritzman et al., 2000); (G. E. Walker et al., 2008); (Polziehn, 2011)
		Employability/ transferable skills	(Nerad & Heggelund, 2008); (Park, 2005); (Wellington, 2013); (Kehm, 2006); (QAA, 2015); (Nerad and ネラ ット, 2015); (Rose, 2012); (Griffiths, 1995); (Ritzman et al., 2000); (JQI, 2004); (Wellington et al., 2005); (Vitae, 2010); (Polziehn, 2011)
		Doctoral identity	(Jones, 2013); (Wellington, 2013); (G. E. Walker et al., 2008); (Holley, 2009); (Sweitzer, 2009); (van Schalkwyk et al., 2016); (Boud & Lee, 2009); (Thomson & Walker, 2010); (Carter & Laurs, 2014); (Hancock & Walsh, 2016)
		Psychological	(QAA, 2015); (Baptista et al., 2015); (AQF, 2013); (Chambaz et al., 2006); (Wisker et al., 2010); (Weisbuch, 2005); (Jazvac-Martek et al., 2011); (Griffiths, 1995); (McAlpine et al., 2009); (Mowbray & Halse, 2010); (Boud & Lee, 2009); (Cuthbert & Molla 2015); (Carter & Laurs, 2014); (Vitae, 2010); (JQI, 2004); (Denicolo & Park, 2013)
		Social	(QAA, 2015); (Denicolo & Park, 2013); (AQF, 2013); (Dimitrov, 2012); (Shaw & Green, 2002); (Rose, 2012); (JQI, 2004); (McAlpine et al., 2009); (Wellington et al., 2005); (Mowbray & Halse, 2010); (Parry, 2007); (Vitae, 2010); (Cotterall, 2011)
		Wisdom / insight	(Mowbray & Halse, 2010); (Parry, 2007)
	Dissertation		(Nilsson & Dunin-Woyseth, 2013); (Sadlak, 2004); (Park, 2005); (Wellington, 2013); (Kehm, 2006); (QAA, 2015); (Baptista et al., 2015); (AQF, 2013); (Chambaz et al., 2006); (Wellington et al., 2005); (Stock, 2011); (Trafford & Leshem, 2008); (Taylor & Beasley, 2005); (van Schalkwyk et al., 2016); (Boud & Lee, 2009); (G. E. Walker et al., 2008); (CGS, 2005);
		Original contribution	(Taylor, 2011); (Biggs 2000); (Campbell et al., 2005); (Sadlak, 2004); (Park, 2005); (Wellington, 2013); (QAA, 2015); (Baptista et al., 2015); (Denicolo & Park, 2013); (Boud & Lee, 2009); (AQF, 2013); (JQI, 2004); (Wellington et al., 2005); (Stock, 2011); (Trafford & Leshem, 2008); (Taylor & Beasley, 2005); (Burgess et al., 2006); (Thomson & Walker, 2010); (CGS, 2005)



Category	Subcategory	Attribute	Citation
		Conceptualized	(Wellington, 2013); (Dimitrov, 2012); (Petre & Rugg, 2010); (Trafford & Leshem, 2008)
		Well-written	(Wellington, 2013); (Wellington et al., 2005); (Stock, 2011); (Boud & Lee, 2009); (Petre & Rugg, 2010)
		Voluminous	(Poole, 2011); (Park, 2005); (Wellington et al., 2005); (Trafford & Leshem, 2008); (Petre & Rugg, 2010)
		Peer-examined	(Biggs, 2000); (Nilsson & Dunin-Woyseth, 2013); (Park, 2005); (Baptista et al., 2015); (Denicolo & Park, 2013); (Trafford & Leshem, 2008); (Taylor & Beasley, 2005); (Boud & Lee, 2009); (Thomson & Walker, 2010)
		Publishable	(Jones, 2013); (Poole, 2015); (QAA, 2015); (Shaw & Green, 2002); (Wellington et al., 2005); (JQI, 2004)
	Highest Degree		(Park, 2007); (Chambaz et al., 2006); (QAA, 2015); (Archbald, 2011); (Weisbuch, 2005); (Boud & Lee, 2009); (Thomson & Walker, 2010); (CGS, 2005)
<b>Prerequisite</b>		Prior study	(Nerad & Heggelund, 2008a); (Chambaz et al., 2006); (Wellington et al., 2005); (Shaw & Green, 2002); (Taylor & Beasley, 2005)
		Personal commitment	(Wellington, 2013); (van Schalkwyk et al., 2016); (Cuthbert & Molla, 2015)
		Aptitude	(Sadlak, 2004); (Chambaz et al., 2006); (Cuthbert and Molla 2015)
<b>Impact</b>		Knowledge Society /economy development	(Park, 2005); (Kehm, 2006); (Nerad & Heggelund, 2008b); (Baptista et al., 2015); (Chambaz et al., 2006); (Halse and Mowbray 2011); (Taylor and Beasley 2005);
		Human capital development	(Park 2007); (Halse & Mowbray, 2011); (Mowbray & Halse, 2010)

From the concept's usage in the literature it can be summarized that:

Doctorateness serves the following purposes:

- a) **scholarship to and stewardship of discipline**
- b) **personal growth and**
- c) **position in the scientific/professional community.**

The process of doctorateness should characterize:

- a) **formal** and
- b) **lengthy** education that should provide enough
- c) **apprenticeship,**
- d) **experience** and
- e) **socialization** to bring with itself
- f) **change and development** in the doctoral student.

Doctorateness as an output is demonstrated in:

- a) graduate
- b) dissertation
- c) degree.

Doctoral graduate attributes consist of a doctoral competence as a result of **research & teaching competencies** as well as **mastery of discipline knowledge** and **higher order thinking skills (HOTS)** and a doctoral identity consisting of **social and psychological identity** formed during doctoral experience and an **insight / wisdom** developed by the time of accomplishing a dissertation.

For doctorateness to be demonstrated, a **dissertation** of appropriate length and composition and with enough **conceptualization** must also be prepared by the graduate which has passed **peer examination** and is considered a **publishable original contribution** to knowledge.

Doctorateness will result in attainment of the **highest academic degree** that qualifies its owner as **an independent scholar**.

Figure 1 demonstrates the components of the concept “doctorateness”:

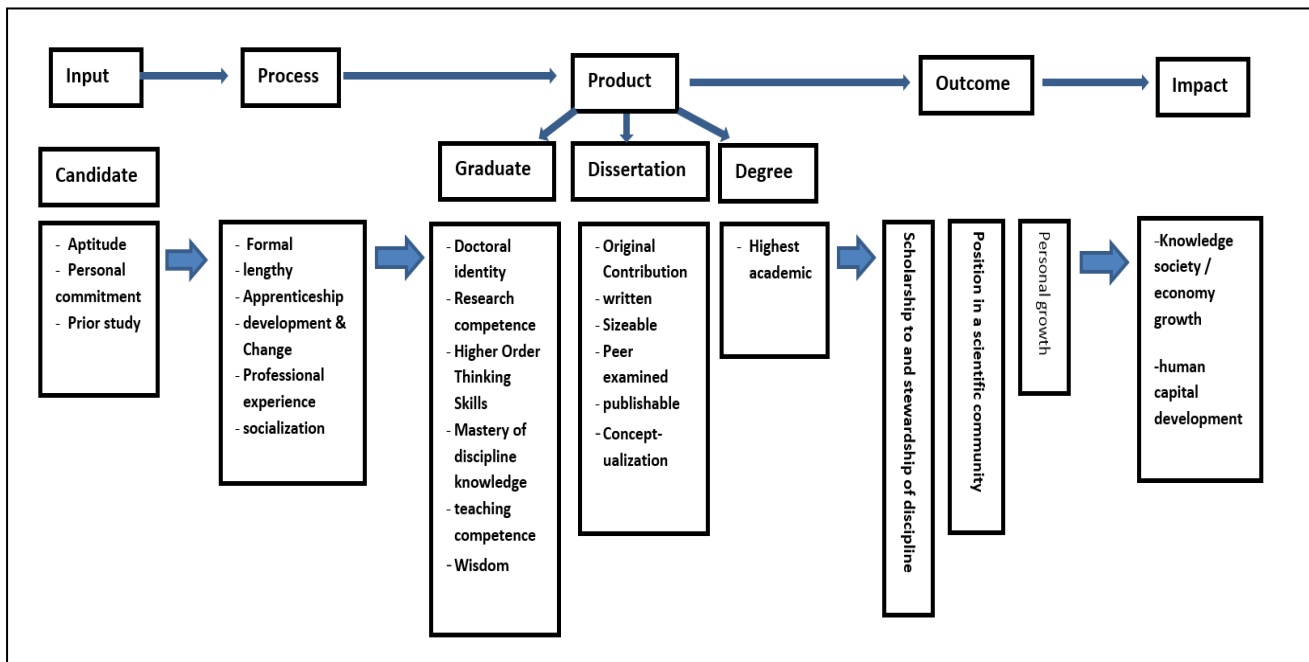


Figure 1. A Conceptual Model for Doctorateness

### *DEFINING ATTRIBUTES OF DOCTORATENESS*

Attributes of a concept are characteristics associated with the concept and appear repeatedly in reference to it (L. O. Walker & Avant, 2005). The defining attributes distinguish the concept from similar or related concepts (McKenna, 2006). Finding the critical attributes of doctorateness is an important step towards clarification of what the concept implies. As Denicolo and Park (2013) emphasized:

What we are seeking to identify, is the ‘essence’ of doctorateness. Essence as used here means the attribute or set of attributes that makes something what it is, in terms of its most important ingredients or elements, and its intrinsic properties; it has these by definition and necessity, and without them it loses its identity. (p. 193)

L. O. Walker and Avant (2005) suggested that the best analyses refine the defining attributes to the fewest number that will still differentiate the concept of interest from surrounding concepts and if the analysis is done well, the defining characteristics, standing alone, should immediately call the concept to mind. At this step McKenna (2006) suggests the test of necessity and sufficiency as a good strategy for identification of defining attributes. To refine the defining attributes of doctorateness, a test of necessity and sufficiency was applied for each attribute. Sufficiency refers to attributes related to the true meaning of a concept, that is, assessment of the relevance, completeness, and amount of information attributed to the concept. Necessity refers to checking attributes of the concept to see whether they apply to dissimilar concepts, in which case, they may not be regarded as defining attributes of the concept being studied and hence need to be discarded or sub-categorized (McKenna, 2006). The defining attributes of doctorateness can be reduced to:

- Independent scholar
- Developmental and transformative apprenticeship process
- Original Conceptual Contribution/scholarship
- Stewardship of the discipline
- Highest academic degree

### **Model and alternative cases**

The identification of model and alternative cases is often a useful way to gain insight for abstract concepts.

**Model case.** A model case is a pure example of the concept being used and should include all the defining attributes. According to Rodgers and Knafl (2000), providing a real-life example that includes all the defining attributes, enhances the degree of clarification and credibility of the concept. The following example presents a model case for the concept of doctorateness:

*Maria following admission to a doctoral program started her journey with great motivation and commitment. In spite of her different roles and a busy life, she scheduled her program so she could attend different courses and events planned by the department for future doctoral students. After a year or two she felt more acquainted with the academic culture of the department and was equipped with the required skills to start her dissertation. Based on her supervisor's advice, she made a number of modifications to the title and methodology of the selected topic so her dissertation would meet the criteria of a doctoral level scholarship. In the long process of dissertation writing she encountered several cognitive and practical challenges which resulted in disappointment and frustration. However, her resilience and the establishment of a respectful relationship with her supervisor (Developmental and transformative apprenticeship process) helped her continue and prepare for her thesis submission. Following the publication of an article in a respected journal and success in her oral defense (Original Conceptual Contribution/scholarship) Maria felt a new authorship and independent identity. After receiving her degree (Highest academic degree) she was prepared for her future career as a scholar (Independent scholar) and felt ready to work for her profession (Stewardship of the discipline).*

**Alternative cases.** According to Walker and Avant (2005) examining other cases is another part of the internal dialogue. Examining cases that are not exactly the same as the concept of interest but are similar to it or contrary to it in some ways helps you make better judgments about defining attributes or characteristics that have the best fit. For the concept of doctorateness alternative cases consist of:

**Borderline case:** Borderline cases are those examples or instances that contain most of the defining attributes of the concept being examined but not all of them (L. O. Walker & Avant, 2005). A retrospective PhD by publication can be considered a borderline case. In this case, all defining attributes exist except developmental and transformative apprenticeship process.

**Related cases:** Related cases are instances of concepts that are related to the concept being studied but that do not contain all the defining attributes. They are similar to the concept being studied and they are in some way connected to the main concept (L. O. Walker & Avant, 2005). An honorary doctorate can be considered a related case, since defining attributes such as developmental & transformative apprenticeship process and highest academic degree are missing in this case.

**Contrary case:** Contrary cases are clear examples of “not the concept”. Contrary cases are often very helpful to the analyst because it is often easier to say what something is *not* than what it is. A PhD candidate with a broken supervisory relationship that experienced too much isolation during his study and feels thesis completion is too much of a burden for him and that he decides to abandon his study, can be considered a contrary case of doctorateness.

### *ANTECEDENTS AND CONSEQUENCES*

Antecedents are events or incidents that must occur prior to the occurrence of the concept, and consequences are the contrary events that occur as a result of the occurrence of the concept. Antecedents for doctorateness are a student’s prior study. Aptitude, and personal commitment. Ensuring quality in doctoral education, first and foremost, relies on selection of students that have the necessary aptitude and commitment to undertake the responsibilities and face the challenges. On the other hand, human capital development and social and economic growth are consequences of doctorateness. The role of doctoral education in developing the critical mass of skilled people needed for advanced economies and knowledge societies has been emphasized by Halse and Mowbray (2011).

### *EMPIRICAL REFERENTS*

According to L. O. Walker and Avant (2005) empirical referents are classes or categories of actual phenomena that by their existence or presence demonstrate the occurrence of the concept itself. These answer the question of how we recognize or measure the defining characteristics or attributes in the real world. For doctorateness, while the comprehensive or qualifying exam can be considered an empirical referent for knowledge mastery in the independent scholar attribute, a successful oral defense of dissertation may be considered an empirical indicator for an independent scholar. The recent emphasis on student portfolio for assessment of graduate attributes can be an indicator for doctoral competence and identity. The tools or questionnaires developed in peer examination of the dissertation can be considered an empirical referent for original contribution to knowledge. Although the problem of implicit criteria for examination of attributes such as original contribution of knowledge in doctoral assessment has been stressed frequently.

### *DEFINITION*

In conclusion, doctorateness can be defined as:

**“A personal quality, that following a developmental and transformative apprenticeship process, results in the formation of an independent scholar with a certain identity and level of competence and creation of an original contribution, which extend knowledge through scholarship and receipt of the highest academic degree and culminates stewardship of the discipline.”**

### *CONCLUSION*

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The concept of doctorateness holds a unique position in doctoral education theory development. Analysis of this concept yielded defining attributes that can help in constructing statements that reflects the relationship between concepts.

In this study the concept of doctorateness is considered within the current context that continues to shape its meanings. From the previous conceptualizations presented for doctorateness, a lack of comprehensiveness in considering all aspects of the concept can be observed. Too much emphasis on the product part of doctoral study rather than the process and, at the same time, too much stress on doctoral thesis as an original contribution to knowledge seem to overlook the importance of characteristic formation of the doctoral graduate. The doctorateness model presented in this article tries to introduce a conceptual framework that includes all the necessary features from different perspectives.

Concept analysis is critical in providing the impetus for the maturation of concepts. Through this study, the level of maturity and pragmatic utility of the concept of doctorateness have been advanced by laying out a clear conceptual foundation. By isolating defining attributes of the concept, the 'semantic space' that the concept doctorateness shares with similar concepts has also been reduced (McKenna, 2006). According to this analysis, doctorateness as a personal quality is demonstrated in graduate of doctoral program as an independent scholar and doctoral dissertation can be considered an output of this personal quality. Formation of an independent scholar relies heavily on a transformative and developmental apprenticeship process. Therefore, it can be concluded that doctorateness is not all about the product and ensuring a constructive process in doctoral education is necessary for achieving doctorateness.

It is very critical for doctoral education research instruments to be based on a conceptual development. Concept analysis and determination of the defining attributes of doctorateness will be very useful in constructing research instruments or interview guides for further studies. The definition and list of defining attributes can provide an excellent way to evaluate the already applied criteria for doctoral assessment. With this clarification of the concept doctorateness it seems that examination of the dissertation alone cannot be considered an inclusive method for doctoral graduate assessment and peer examination in oral defense is required.

Defining doctorateness will have implications for practice and policy of doctoral education and will provide a basis for evidencing doctoral awards and explicit criteria for its judgment. To ensure doctorateness careful selection and application of appropriate scales for assessment is required. Therefore, developing tools consisting certain scales to measure attributes of the graduate as an Independent scholar with certain doctoral competencies and identity will best serve the purpose of doctoral education.

With the emphasis on a developmental and transformative apprenticeship as one of defining attributes, a challenge for directors and policy makers will be evaluation and quality assurance of this attribute in doctoral programs. Considering recent emphasis on a more structured doctoral education (Nerad & Heggelund, 2008b), this model also brings consequences for the doctoral curriculum content and strategies. Adopting strategies to ensure best supervision models and providing learning experiences to maximize socialization of doctoral students in different levels in the program will facilitate the development and transformation necessary for the formation of doctoral graduate. A clear understanding of doctorateness provides the necessary conceptual ground for development of the most effective model for doctoral education.

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