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INTEREST AND MOTIVATION TOWARDS MATHEMATICS

Most talented students' self-perception

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ABSTRACT

Since the beginning of schooling, students have been using elementary procedures to find solutions to problems that indicate how they structure their mathematical thought. One of Mathematics learning objectives is to get students to develop a flexible, agile and applicable knowledge that can be continually reinvented and adapted to new situations. Regrettably, this objective is not easy to reach and students frequently complain about the failures of mathematical education, mainly for the rejection sometimes inspired by this discipline, causing a negative attitude towards their own learning. In this article, we will focus on the attitudes that students show towards Mathematics. For this analysis, we will use the results obtained through the process of construction of the "Batería de Evaluación de la Competencia Matemática" (BECOMA), an evaluation instrument that measures the mathematical competence of students in 5th grade of Primary Education, focusing on the variable Interest and motivation towards the subject of Mathematics from the student's point of view analyzed throughout the process of validation of the set of evaluation tools previously mentioned. In the last section of this article, we will only focus on the results of the most talented students in Mathematics.

GLOBAL KNOWLEDGE ACADEMICS

1. Introduction

Education has as its one of its fundamental purposes the attainment of the greatest equality of opportunity possible among students, in order to bring about their full and integral development by means of some teaching and learning quality processes. In order to support the attainment of this purpose, the competency-based education is born as a fundamental model of working of diverse national and international organizations, marking the priority lines of action in educational subject.

In the case of mathematical competence, central theme to this article, it appears integrated in the educational processes, mainly in the development of the area of Mathematics, taking three forms (González, 2007): as a group of general processes, as a study domain and as main and priority purpose of the teaching and learning of Mathematics and, finally, as a group of agglutinated competences in the form of groups or levels of cognitive complexity expressible by a scale.

A basic premise of the educational application of this competence is that the elements of mathematical reasoning are used to face diverse daily situations. To this end, it is necessary to detect and analyze such situations, selecting the appropriate techniques to calculate, represent and interpret through the available information and applying problem solving strategies. This competence also emphasizes the elements and processes of mathematical reasoning that lead students to the solutions of problems or requires them to obtain information in a wide variety of situations.

In terms of the attitudes of students toward the resolution of mathematical problems, De La Rosa (2007) believes that the preferences and feelings that students show are: going directly to get the solution without first settling down a work plan, not making a comprehensive reading of the problem, quickly solving in a trial/error way without making any previous reading, letting their attention scatter, not reasoning about the provided data, feeling fearful in novel situations or that they don't dominate (mental blocks), requesting the teacher's help for the resolution before having finished reading the problem; lack of motivation to problem solving and the existing separation between the reality where the student lives and problem's translation to the mathematical language.

In the assignment to avoid these attitudes in the students, the docent plays an important role. Pifarré and Sanuy (2001) establish that there are variables that influence students' when solving mathematical problems, noting the following ones in relation to teaching: "el tipo y las características de los problemas, los métodos de enseñanza utilizados y los conocimientos, las creencias y las actitudes del profesor sobre las Matemáticas y su enseñanza-aprendizaje"[1] (207). The teaching of the Mathematics will begin with the reflection on two important purposes of its didactics: (1) to try that the students come to appreciate the paper of the Mathematics in society, its fields of application and its contribution to social and cultural development, and (2) to make them understand the operation of the mathematical method, so that they can adjust it to each situation.

The European Union (2004) establishes as attitudes towards Mathematics to work with students on the following: disposition to get over "the fear of numbers", choice to use numerical calculation to solve daily life problems, respect for the truth as the base of the mathematical thought, willingness to look for the reasons in which their own arguments are based and willingness to accept and reject opinions of others based on valid or invalid evidences.

In Spain, the *Marco General de la Evaluación de 3º de Educación Primaria* (2014) sets as the development principles of attitudes and values in Mathematics, accuracy, teamwork, respect for datas, effort, perseverance and truthfulness, requiring the students the following aspects:

- A favorable attitude towards contexts of mathematical content.
- To value the need to explore different sources of information, and their use when the situation suggests, in order to progressively acquire more complex knowledge from experience and previous knowledge.
- To recognize the role of Mathematics in the world and to use the concepts, procedures and tools to apply them in the resolution of problems that may arise in certain situations throughout life.
- To demonstrate an orderly and systematic work style, creatively tackling the search for solutions to problems.
- To be persistent in the task, to develop a critical eye and reflect on the results.

Muñoz and Mato (2008) indicate that educational systems should generate teaching methods that take into account the attitudes of students during the learning of mathematics, granting to the teacher a fundamental role as a knower of these internal processes of their students. They affirm that "los puntos débiles de las actitudes frente al estudio de las Matemáticas no solo afectan a los grupos de alumnos o a los centros de enseñanza de rendimiento más bajo; muchos alumnos con un rendimiento relativamente bueno, se ven frenados por su actitud negativa hacia las Matemáticas" (224). [2]

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[1] "The type and characteristics of the problems, the teaching methods used and the knowledge, the beliefs and the attitudes of the professor of Mathematics and his/her teaching–learning"

[2] "The weak points of the attitudes towards the study of Mathematics not only affect at the groups of students or the centers of teaching of

Lastly, it's necessary to point out that the most talented students in Mathematics show some specific characteristics that make them unique compared to the rest of students. A process of detection of these particularities should be first developed, so that educators can adjust their interventions accordingly. Within these characteristics, the affective-emotional ones appear as as essential aspect to be known and developed with the purpose to increase both personal, social and educational well-being of these students. Therefore, a good attitude is considered fundamental for school success in the area of Mathematics.

2. Method

This article consists of a descriptive study whose objective is to analyze and to understand the existing relationships among a group of quantitative data analyzed from two variables defined in the study about mathematical competence, in this case *interest and motivation towards the area of Mathematics from the student's point of view* and *results in the BECOMA battery*. After that, these two variables are compared with the *interest and motivation toward the area of Mathematics from the teacher's point of view*. Ultimately, the study approaches the results of the most talented students in Mathematics according to these variables. The consideration of "most talented students in Mathematics" starts with the achievement of a high score after the administration of the BECOMA battery.

In the process of construction of this battery, several samples of students of 5th grade of Primary Education of the province of Albacete have been used in the following way:

Table 1. Participant sample in every period of investigation

	First Administration	Second Administration	Final Administration	Total
Students	170	230	722	1.122
%population	4.28	5.80	18.20	28.28

The validation process of the instrument has been developed from the last administration performed, at which time the data center the content of this article. An initial sample of 722 students of the 3,968 students enrolled in this province and at this level, the participant final sample being of 712 or a 17.94% of the school population.

These student participants in this last period of the research have been distributed among twenty-four educational centers with different educational units. According to their ownership, there are twenty public schools and four charter-private ones, and according to their environment there are fourteen urban and ten rural. In this selection of schools, the proportion of schools in the province of Albacete has been respected, where public education is around 83% of the total number of schools and the private school is 17%; whereas a 61% of the schools are located in urban areas and a 39% in rural ones.

The BECOMA battery consists of 34 items divided into 8 evaluation tests. These items are divided into six factors: *Successions* (six items), *Graphic structuring* (nine items), *Parts of the whole* (seven items), *Problem solving* (four items), *Ten-hundred-thousand* (five items) and *Decomposition and properties* (three items). Each item can have a score of 0, 1 and 2, oscillating the total value between 0 and 68. From these scores, seven levels of mathematical domain are established according to the degree of difficulty of the items and the answers given by the subjects. The instrument can be administered in an individual or collective way and its application time is forty-nine minutes.

The main variable used has been *interest and motivation towards the area of Mathematics from the student's* point *of view*, a variable that in the construction and validation process of the BECOMA has served for the analysis of the concurrent validity. This variable has been picked up by means of a question that was indicated to the students in the cover of the instrument and has been defined by a Likert scale with a score between 1 and 5: *Nothing* (1), *Little* (2), *Regular* (3), *Enough* (4) and *A lot* (5).

In the BECOMA battery, the students' results are based on seven levels of perfomance. For the analysis of the perfomance of the most capable students for the Mathematics according to this variable, levels 6 and 7 have been used, the two upper levels of BECOMA. These levels, and their respective intervals and frequencies, appear defined in the following table 2:

Table 2. Levels of perfomance of the BECOMA

Levels	Intervals	n	%	% valid	% accumulated
1	<= 8	14	2.0	2.0	2.0
2	9 – 18	88	12.4	12.4	14.3
3	19 – 28	165	23.2	23.2	37.5
4	29 – 38	184	25.8	25.8	63.3
5	39 – 48	159	22.3	22.3	85.7
6	49 – 58	80	11.2	11.2	96.9
7	59 – 68	22	3.1	3.1	100.0
	Total	712	100.0	100.0	

lower yield; many students with a relatively good performance are held back by their negative attitude towards Mathematics."

3. Results

The interest and enjoyment towards mathematical competence, or *intrinsic motivation*, affects the degree of effort and involvement of the students in their own learning, demonstrating that it influences significantly regardless of the general motivation towards the set of contents to learn at school (INEE 2008, 2013). Table 3 shows the distribution of the students in the investigation according to this variable.

Table 3. Distribution of the participant sample according to the attitudinal self-perception of the students

	Scale	n	%
Student interest	Nothing	43	6.0
	Little	104	14.6
	Regular	231	32.5
	Enough	184	25.8
	A lot	150	21.1
	Total	712	100

By relating the scores obtained by the students in the battery with this variable, a Pearson correlation coefficient = .72 was obtained, the correlation being significant at the .01 bilateral level. The index obtained shows a close association among both variables.

To analyze the differences in the scores in the battery set, this attitudinal variable has been transformed into another categorical one, distributed in three levels: *low* ("nothing" and "little," n = 147, 20.7%), *medium* ("regular," n = 231, 32.4%) and *high* ("enough" and "a lot," n = 334, 46.9%). The average score in each one of the categories has been 20.03 (DT = 9.02) for the low level, 29.45 (DT = 9.19) for the medium one and 42.69 (DT = 10.13) for the high one.

The results of the ANOVA (see table 4) have shown statistically significant differences among the three groups considered, suggesting that the students' scores in the battery set have varied according to the categories within this variable.

Table 4. ANOVA of the variable interest and motivation in the area of Mathematics according to the student's point of view

	Under		Medium		High						
	M	*DT*	*M*	*DT*	*M*	*DT*	*F*	*gl*	*p*	*Eta²*	*Direction*
F1: Successions											
IT 14	1.45	.69	1.56	.57	1.86	.38	39.03	711	.000**	.099	A > M, B
IT 15	.82	.76	1.03	.72	1.45	.65	49.18	711	.000**	.122	A > M > B
IT 16	.47	.65	.82	.75	1.33	.75	79.66	711	.000**	.183	A > M > B
IT 17	.54	.65	.97	.72	1.41	.69	84.20	711	.000**	.192	A > M > B
IT 18	.53	.61	.83	.69	1.26	.66	70.65	711	.000**	.166	A > M > B
IT 19	.41	.53	.62	.58	1.12	.68	83.93	711	.000**	.191	A > M > B
Total Factor	4.22	2.33	5.83	2.37	8.42	2.44	180.60	711	.000**	.338	A > M > B
F2: Graphic structuring											
IT 1	.55	.89	.68	.94	1.14	.98	26.68	711	.000**	.070	A > M, B
IT 2	.22	.61	.26	.66	.67	.94	25.73	711	.000**	.068	A > M, B
IT 3	.55	.87	.99	.95	1.40	.87	47.70	711	.000**	.119	A > M > B
IT 4	.73	.80	1.20	.84	1.46	.80	42.18	711	.000**	.106	A > M > B
IT 12	1.59	.77	1.79	.60	1.91	.40	16.32	711	.000**	.044	A, M > B
IT 13	.34	.74	.68	.93	1.20	.97	51.21	711	.000**	.126	A > M > B
IT 28	.12	.36	.22	.46	.43	.67	20.18	711	.000**	.054	A > M, B
IT 29	.58	.72	.94	.76	1.42	.70	75.92	711	.000**	.176	A > M > B
IT 30	.84	.81	1.26	.78	1.54	.65	47.79	711	.000**	.119	A > M > B
Total Factor	5.52	3.40	8.03	3.58	11.18	3.41	149.20	711	.000**	.296	A > M > B
F3: Parts of the whole											
IT 20	.32	.72	.60	.89	1.19	.97	58.55	711	.000**	.142	A > M > B
IT 21	.07	.37	.26	.64	.63	.91	34.35	711	.000**	.088	A > M, B
IT 22	.42	.80	.83	.98	1.39	.92	62.96	711	.000**	.151	A > M > B
IT 23	.48	.76	.79	.89	1.24	.91	44.11	711	.000**	.111	A > M > B
IT 24	.43	.69	.59	.82	.90	.91	18.61	711	.000**	.050	A > M, B
IT 25	.37	.64	.62	.80	1.05	.91	40.08	711	.000**	.102	A > M > B
IT 26	.20	.49	.39	.66	.86	.86	51.78	711	.000**	.127	A > M > B
Total Factor	2.29	2.47	4.07	3.33	7.26	3.77	128.11	711	.000**	.265	A > M > B
F4: Resolution of problems											
IT 31	.99	.92	1.44	.83	1.74	.61	51.52	711	.000**	.127	A > M > B
IT 32	.47	.78	1.01	.94	1.37	.89	52.75	711	.000**	.130	A > M > B
IT 33	.37	.71	.65	.88	1.19	.91	55.14	711	.000**	.135	A > M > B
IT 34	.10	.38	.26	.61	.75	.91	52.99	711	.000**	.130	A > M, B
Total Factor	1.93	1.93	3.36	2.17	5.05	2.25	115.65	711	.000**	.246	A > M > B
F5:Ten-hundred thousand											
IT 5	1.03	.90	1.30	.86	1.47	.78	14.30	711	.000**	.039	A, M > B
IT 9	.59	.65	.74	.68	1.15	.73	42.91	711	.000**	.108	A > M, B
IT 10	.49	.67	.84	.76	1.32	.63	84.58	711	.000**	.193	A > M > B
IT 11	.35	.59	.54	.68	.84	.71	30.81	711	.000**	.080	A > M > B
IT 27	.31	.72	.54	.88	1.16	.97	59.90	711	.000**	.145	A > M, B
Total Factor	2.77	1.99	3.97	2.11	5.96	2.04	141.93	711	.000**	.286	A > M > B
F6:Decomposition and properties											
IT 6	1.29	.73	1.45	.71	1.66	.54	19.08	711	.000**	.051	A > M, B
IT 7	1.27	.72	1.58	.62	1.69	.54	24.08	711	.000**	.064	A, M > B
IT 8	.75	.78	1.17	.76	1.46	.68	50.28	711	.000**	.124	A > M > B
Total Factor	3.31	1.72	4.19	1.61	4.81	1.39	50.01	711	.000**	.124	A > M > B
Total Battery	20.03	9.02	29.45	9.19	42.69	10.13	317.41	711	.000**	.472	A > M > B

* Significant to the 5% ($p < .05$)
** Significant to the 1% ($p < .01$)

Next, the results of the most talented students in Mathematics according to this variable are pointed out. After the administration of the battery, this group of students has been located in levels 6 and 7, the two highest perfomance levels of the instrument. In the validation of the BECOMA, its intervals and frequencies have been the following:

Table 5. Superior levels perfomance of the battery

Level	Interval	f	%
6	49 – 58	80	11.2
7	59 – 68	22	3.1

As it can be observed in the superior perfomance levels, 102 students have appeared. Their results according to this variable have been the following:

Table 6. Interest and motivation towards Mathematics of the students located in the highest perfomance levels in the BECOMA

	Scale	Level 6	Level 7
Student interest	Nothing	0	0
	Little	1	0
	Regular	6	0
	Enough	28	6
	A lot	45	16
	Total	80	22

According to table 6, the students of level 6 rate their interest and motivation in Mathematics "enough" or "a lot." In the case of level 7, the superior of this instrument, most rated themselves at "a lot." It is verified that the more interest and motivation the students show, the bigger their acting area in the BECOMA battery is.

Lastly, the results of this variable have been related to a different one also used in the process of construction and validation of the battery "*interest and motivation towards the area of Mathematics from the teacher's point of view*". This variable has also been used for the analysis of the concurrent validity of BECOMA. When relating this variable to "*the interest and motivation in Mathematics from the student's point of view*", previously analyzed, the Pearson correlation coeficient has been .73, the correlation being significant at .01 bilateral level. The obtained index shows a high association among both variables.

In table 7, the distribution of the students in the investigation according to the teacher's perception can be seen:

Table 7. Distribution of the participant sample according to the teacher's perception of attitudes

Teacher interest	Nothing	29	4.1
	Little	142	19.9
	Regular	227	31.9
	Enough	186	26.1
	A lot	128	18.0
	Total	712	100

After relating the scores obtained by the students in the battery with this variable, the Pearson correlation coefficient has been =.80, a high and significant index, that shows a very high association between the variables. To detail the differences in the scores in the whole of the battery taking as a factor this attitudinal teacher perception, this last one has been transformed into a category with three levels: *low* ("nothing" and "little," *n* = 171, 24%), *medium* ("regular," *n* = 227, 31.9%) and *high* ("enough" and "a lot," *n* = 314, 44.1%). The average score in each category has been 18.62 (DT = 7.73) for low, 30.92 (DT = 8.26) for medium, and 43.95 (DT = 8.91) for high. The results of the ANOVA have shown statistically significant differences among the established groups, suggesting that the scores of the students have varied according to the category where eache student has been included within this variable.

As stated above, 102 students have appeared in the superior levels of performance. The students' results according to this variable have been the following:

Table 8. Interest and motivation in Mathematics according to the teacher of the students located in the highest perfomance levels in BECOMA perfomance levels in BECOMA

	Scale	*Level 6*	*Level 7*
Teacher interest	Nothing	0	0
	Little	0	0
	Regular	5	1
	Enough	33	2
	A lot	42	19
	Total	80	22

According to table 8, the students of level 6 have an interest and motivation in Mathematics of "enough" or "a lot," and those of level 7 of "a lot.". It is shown that the higher the teacher's expectations of the interest and motivation of his students towards Mathematics, the greater his performance in the BECOMA battery.

4. Conclusions

The period of compulsory education constitutes an important moment for the work of competences as it is possible to make all the students participants of their own learning, what constitutes a unique opportunity for its balanced and integral development. In the case of mathematical competence, it is considered as a complex construct that acquires educational sense when the mathematical knowledge learned is used in the natural environment surrounding the student, giving to the student's attitudinal component an unusual importance and being essential as a central theme in the teaching and learning of Mathematics.

Throughout this article the explicit attitudes by means of the variable "*interest and motivation in the* *area of Mathematics from the student's point of view*" have been related to the results in the BECOMA battery. In this linking, an index of correlation of .72 has been obtained, i.e. a high and significant one. In order to analyze the differences in the scores, this variable has been transformed into another category with three levels: low ("nothing" and "little"), medium ("regular") and high ("enough" and "a lot"). The comparison of the averages has derived in scores of 20.03 (DT = 9.02) for the low level, 29.45 (DT = 9.19) for the medium one and 42.69 (DT = 10.13) for the high one.

The ANOVA results show statistically significant differences among the three groups in relation to students' scores on the battery. These results are connected to those obtained in other investigations regarding this variable (Bazán and Aparicio 2006; Gil, Blanco and Guerrero 2006; INEE 2008, 2013; Mato, Espiñeira and Chao 2014; Molera, 2012).

In the case of the most talented students in Mathematics, it has been observed that the greater the students' interest and motivation toward Mathematics, the higher their perfomance in the BECOMA battery. Studies have shown that students with greater interest and motivation in Mathematics tend to get better results and better perfomance than the rest. Thus, a positive disposition toward Mathematics is in itself an important educational objective (Cueli, García and González-Castro 2013; INEE 2008, 2013; Mato, Espiñeira and Chao 2014).

This pleasure in the subject is translated in the enjoyment towards learning, in the consideration of carrying out a good perfomance or in the valuation of the contents that are learnt as interesting (Tourón et al. 2012). Other investigations manifest that students with higher perfomance are shown to be more intrinsically motivated by the subject, showing a greater interest in doing their homework. (Pan et al., 2013).

Among the conclusions of PISA 2012 in relation to this variable, it is pointed out that the students' interest in learning mathematical content is low; enjoying little with their learning and, mainly in the case of girls, their advancement is hindered by anxiety and lack of trust (INEE 2013). Mato, Espiñeira and Chao (2014) affirm that the courses of Primary Education to Obligatory Secondary Education will prompt a descent in the attitudes towards the study of Mathematics. Moreover, if these attitudes decrease, the student may have feelings of lack of confidence in their own abilities, favoring the appearance of a low interest in the subject and the consequent diminution of their motivation to learn it (Mato, 2010).

Within the scope of Mathematics, the results of another variable have also been pointed out in this article, relating them to the performance of students in BECOMA, the *"student's interest for Mathematics from the teacher's point of view".* The interrelationship between both variables is .80, a quite high and significative one. When comparing the averages, this last variable has been transformed into a categoric variable with three levels: *low* (nothing and little); *medium* (regular); and *high* (enough and a lot). The average score in each category has been: 18.62 (DT=7.73) for the low level; 30.92 (DT=8.26) for the medium level; and 43.95 (DT=8.91) for the high level. ANOVA results show statistically significant differences among the three groups according to the students' scores in the battery. According to Tourón et al. (2012), statistical significant differences in *class perception* from the teacher's expectations about what the students should do and their interest in the tasks, with important differences between the students with high and lower performance.

When relating this variable with "interest and motivation toward Mathematics from the student's point of view" a Pearson index =.73 has been obtained, where the significant correlation is at the .01 bilateral level and there's a close association between both variables.

In short, the study and knowledge of students' attitudes toward Mathematics can be considered as an educational field of great value within what is known as *mathematical affective domain* (Palacios, Arias and Arias 2014). For this reason, teachers should pay special attention to these interests and motivations because of its importance in their mathematical perfomance, in order to favour the reduction and/or prevention of school failure habitually generated by this discipline.

References

Bazán, J. L. and A. S. Aparicio (2006). Las actitudes hacia la Matemática-Estadística dentro de un modelo de aprendizaje. *Revista Semestral del Departamento de Educación,* 25(28): 1–12.

Cueli, M., García, T. and González-Castro, P. (2013). Autorregulación y rendimiento académico en Matemáticas. *Aula Abierta,* 41(1): 39–48.

De La Rosa, J. M. (2007). *Didáctica para la resolución de problemas*. Andalucía: Junta de Andalucía.

[European Union] Unión Europea (2004). *Puesta en práctica del programa de trabajo Educación y Formación 2010*. Comisión Europea: Dirección General de Educación y Cultura.

Gil, N., Blanco, L. and Guerrero, E. (2006). El papel de la afectividad en la resolución de problemas matemáticos. *Revista de educación,* 340: 551–69.

González, J. L. (2007). *Competencias básicas en educación matemática*. Málaga: Universidad de Málaga.

INEE (Instituto Nacional de Evaluación Educativa). (2008). *PISA 2003. Matemáticas. Informe español*. Madrid: Ministerio de Educación, Cultura y Deporte.

— (201)3. *PISA 2012: Informe Español. Volumen I: Resultados y contexto*. Madrid: Ministerio de Educación, Cultura y Deporte.

Molera, J. (2012). ¿Existe relación en la Educación Primaria entre los factores afectivos en las Matemáticas y el rendimiento académico? *Estudios sobre educación,* 23: 141–55.

Muñoz, J. M. and Mato, M. D. (2008). Análisis de las actitudes respecto a las Matemáticas en alumnos de ESO. *Revista de Investigación Educativa.* 26(1): 209–26.

Palacios, A., Arias, V. and Arias, B. (2014). Attitudes towards Mathematics: Construction and Validation of a Measurement Instrument. *Revista de Psicodidáctica,* 19 (1): 67–91.

Pan, I., Regueiro, B., Ponte, B., Rodríguez, S., Piñeiro, I. and Valle, A. (2013). Motivación, implicación en los deberes escolares y rendimiento académico. *Aula Abierta,* 41(3), 13–22.

Pifarré, M. and Sanuy, J. (2001). La enseñanza de estrategias de resolución de problemas matemáticos en la ESO: Un ejemplo concreto. *Revista de Investigación Didáctica: Enseñanza de las Ciencias*, 19(2): 297–308.

Tourón, J., Lizasoaín, L., Castro, M. and Navarro, E. (2012). Alumnos de alto, medio y bajo rendimiento en Matemáticas en TIMSS. Estudio del impacto de algunos factores de contexto. *PIRLS–TIMSS 2011: Informe Español. Análisis secundario*, 2, 187–215.