Reputation, Status Networks, and the Art Market

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Abstract: The effect of an artist's prestige on the price of artwork is a well-known, central tenant in art market research. In considering how an artist's prestige proliferates, much research examines networks, where certain artistic groupings and associations promote individual member's artistic standing (i.e., "associative status networks"). When considering the role of associative status networks, there are two models by which status may increase. First, the confirmation model suggests that actors of similar status are associated with each other. Second, the increase model suggests that a halo effect occurs, whereby an individual's status increases by association with higher-status artists. In this research, we examine the association of artists through museum exhibition to test confirmation versus increase models, ascertaining whether prestige acquisition is a selection or influence process. This research capitalizes on the retrospective digitization of exhibition catalogues, allowing for large-scale longitudinal analysis heretofore unviable for researchers. We use the exhibition history of 1148 artists from the digitized archives of three major Dutch museums (Stedelijk, Boijmans-Van Beuningen, Van Abbe) from 1930 to 1989, as well as data on artists' market performance from artprice.com and bibliographic data from the WorldCat database. We then employ network analysis to examine the 60-year interplay of associative status networks and determine how different networks predict subsequent auction performance. We find that status connections may have a point of diminishing returns by which comparison to high prestige peers increases one's own prestige to a point, after which a high-status comparison network becomes a liability.

Keywords: artistic reputation; auction price; museum exhibition; associative status networks; prestige; associative theory

1. Introduction

Art history repeatedly reveals the crucial role connections play in artistic careers. Particularly during the 20th century, artists were frequently known by their memberships within groups or stylistic movements. For lesser-known artists, connections to more prestigious names often serve as a crucial turning point for their reputations. Similarly, artistic practices are commonly inspired and grounded by tracing ideas to earlier visionaries, for example, the various artists who draw inspiration from Marcel Duchamp's conceptualist precedents or Robert Rauschenberg's innovative material combinations (see Foster 1994).

In both visual art and across artistic fields, research has shown that advantageous associations can be professional, such as membership within an artistic movement (Crane 1987; White and White 1965; for example, see pp. 6–17), mentorship between an established and novice artist (Craig and Dubois 2010), or attending a prominent academy or school (Madoff 2009); however, informal associations also prove beneficial, ranging from friendship circles and social milieus (Currid 2007;

Ridgeway 1989) or admiration and attributing influence (Craig 2007; Anheier and Gerhards 1991) to evaluative comparisons created by critics and historians (Braden 2018; Schmutz and Faupel 2010). Regardless of origin or expression, the underlying motivation for promoting association is to influence an art worker's standing, and empirical evidence corroborates the material effect associations can engender. For example, sociological research on artistic workers in both music and theater has shown the importance of connections for both greater professional opportunities and income (Dowd and Pinheiro 2013; Uzzi and Spiro 2005).

The purpose of the current research is to test the theories on how associations impact an artist's prestige. While previous research has explored the importance and influence of connections in the art world, the mechanism behind how associations work has received little empirical examination. Case studies provide anecdotal evidence and offer some theoretical explanations; however, fewer studies have sought to test association's general, long-term impact. The following research empirically examines associative theory and assesses different ways in which associations may produce long-term advantages with respect to artists' auction prices.

To uncover the structural mechanisms underlying artists' statuses and reputations, our research makes use of the growing digital repositories tracking artists' career trajectories and outcomes. As such, we follow in the footsteps of work in the digital humanities (e.g., Meirelles et al. 2014; Brosens et al. 2016; Lincoln 2016), in which larger-scale datasets are created to assess the patterns and structures underlying the history of culture. In art market research, Szabo (2012) and Van Ginhoven (2017) showed how network visualizations are particularly useful tools to expand analyses of artists' sales into longitudinal and international scope. In this article, we attempt to move forward in two ways. First, we go beyond descriptive analysis of networks by explicitly modeling the causal relationship between artists' statuses and reputations. Second, we transcend "the biased preference toward certain types of networks, such as social networks, over all other possible networks in arts, humanities, and culture" (Meirelles et al. 2014, p. 91) by explicitly theorizing about and mapping associative connections between artists created through museum exhibition.

Utilizing ideas in cognitive and development studies, we can theorize how associations may affect an artist's standing. Fundamentally, association is the foundation for memory and learning. Though associations are often built on perceived similarity between two subjects, association can also be created by simultaneous experience (Strauss 2017; Thorndike 1920). That is, when different objects, ideas, or actions are experienced at the same time, they can become associated or linked together in the mind. (Think, for instance, about the association between salt and pepper, bacon and eggs, or cookies and milk.) The more often this association occurs (i.e., "frequency"), the stronger the mental link becomes (Hamilton and Gifford 1976; Skinner 2014). Later, when a subject is encountered again, the association is easily recalled in the working memory and becomes part of what is known about both subjects. In this manner, contiguous association (Guthrie 1930, 1959) is a basis by which people acquire knowledge.

From an understanding of contiguous association, it is possible to comprehend how cultural associations can benefit status and reputation. When historical personages are repeatedly associated, such as through critical or historical assessment and grouping, these personages may become linked within cultural knowledge and the public consciousness. For example, when artists are grouped together in exhibition, the audience's concurrent experience of their work creates an explicit association between the artists themselves (for example, see Lang and Lang 1990). Group exhibition explicitly promotes the connections between artists: exhibitions titles such as "Cézanne, Gauguin, Seurat, Van Gogh" (MoMA Exh. #1, 7 November–7 December 1929) clearly create association between these artists. Note that, in such exhibitions, the use of the artist's name and reputation captures the content of the exhibition, i.e., the artist and artwork are the same. Because exhibitions invite attendees to view the presented as related and more significant when understood in tandem, such exhibitions connect artists while building their reputation through that connection. Because museums are often considered the

gateway to prestigious, successful careers (Braden 2009; Fraiberger et al. 2018), exhibition association is particularly powerful, denoting critical comparability and a historical relationship.

Theoretically, then, exhibitions should be a vehicle for increasing prestige. Associative theory postulates that when an individual is more prestigious or recognized than another with whom she or he is associated, a mental heuristic may serve to extend attributes identified with the more well-known to the lesser-known individual (Kahneman 2011; Thorndike 1920). Through this heuristic, attributes such as expertise, quality, and esteem are believed to characterize both people based on their perceived association. Here, however, the mechanism by which association benefits the prestige of an individual becomes unclear. Specifically, there is little research into whether associations serve to *increase* or *confirm* prestige. The difference is subtle but important.

The "halo effect" (Thorndike 1920), whereby positive attributes extend through association, is dependent on relational connections and, therefore, is an evolving network position (Collins and Guillén 2012). If association increases prestige, then the effect should be cumulative, where each association has the potential to add to an actor's status. Alternatively, if associations confirm an actor's prestige, actors should be grouped by similar reputation, where, for example, artists of a similar prestige level would be routinely compared. Such repeated association serves to legitimize and strengthen reputational standing, providing a more durable personal attribute that an artist carries around as part of how she or he is known (i.e., part of one's "reputation", see Granovetter 2005, also, for an organizational example, see Schultz et al. 2001).

The difference under discussion here can be understood as the difference between reputation and status. While these terms are often used interchangeably, there are valuable distinctions. Reputation is the beliefs or opinions generally held about someone (Granovetter 2005), whereas status is often defined as a relative social or professional standing (Linton 1936; Berger et al. 1972). In other words, reputation is a known aspect of an individual's identity, while status is comparative and relational. For example, think of the difference between the statement that "she is a talented emerging artist" compared with the statement that "she is the most talented artist emerging this year". The first statement is one of reputation ("she is talented"), the second is one of status, where a hierarchy of talent is developed in relation to comparative others. The distinction matters when hierarchical heuristics come into play, such as when rewards are scarce, but value measurement is unclear (see Bourdieu 1983 for specific context in the art world, but also Kahneman 2011 for heuristic reliance). Whereas a good reputation may garner rewards in the art world, status may determine which artists receive the most or greatest accolades. This distinction is particularly salient within the art market, where the reason for sky-rocketing prices for some artists, but not others, is indefinite. Are high auction prices indicative of an individual artist's outstanding reputation? Or are market prices affected by an association dynamic, where the high price of one artist leads to greater market demand for his or her associates? In the following section, we attempt to untangle these mechanisms by formalizing hypotheses on the temporal connection between prestige and connections to prestigious others.

We test two possible mechanisms of prestige moving through associations. Our first theory describes a flow of prestige in which associations with high prestige others increases the status of those persons associated with them. Within art exhibitions, this theory leads us to expect that exhibiting with high prestige artists increases an artist's own prestige. Consequently, we hypothesize that if status impacts prestige, then prestigious associations add to an artist's standing and, consequently, help explain variation in auction performance.

Alternatively, if reputation influences auction sales, then a second potential mechanism is at play in museum exhibitions, which we term the confirmation effect. Here, we hypothesize that an artist's reputation leads to associations with equal prestige artists, and when artists are exhibited together through comparable reputations, these associations serve to recognize and confirm the artist's level of prestige. Unlike the increasing effect of status, the confirmation effect is hypothesized to occur when an artist's prestige is established by individual accomplishments and then supported by exhibition with prestigious others.

In both models, prestige and prestigious connections are assumed to be causally related to one another, but the causal mechanism between them differs strongly. For the increase model, i.e., when assuming connections with high prestige others will increase one's status, high prestige connections causally must come first, and subsequently, artists gain prestige. Therefore, in an increase model, we hypothesize the following:

Hypothesis 1. *An artist's high prestige connections at timepoint 1 (t1) predict an artist's number of solo exhibitions at timepoint 2 (t2). Alternatively, in a confirmation model, the opposite occurs. If artists are exhibited together based on their reputation, we expect that, first, reputation must develop, and subsequently, artists will be increasingly exhibited with others of similar status. This leads us to our alternative hypothesis:*

Hypothesis 2. *An artist's number of solo exhibitions at t1 predicts the number of high prestige connections at t2.*

The objective of this research is not merely to ascertain which mechanism lies at the core of an artist's amassing of prestige, but to go beyond this and assess how these mechanisms in turn affect an artist's auction prices. Theoretically, both mechanisms of reputation and status associations explain an artist's auction price, with the effects potentially working in tandem to explain the large variance found in art markets. Despite the theoretical distinction between status and reputation, their effects on an artist's auction price should be similar; that is, both factors of high status and strong reputation are expected to raise an artist's price. Yet, it is important to assess which of the two has a stronger bearing on auction prices in order to decipher the mechanism underlying prestige's influence. To test the respective effects of status and reputation on an artist's market value, we formulate two additional hypotheses:

Hypothesis 3. *An artist's reputation positively affects his or her auction prices.*

Hypothesis 4. *An artist's status connections positively affect his or her auction prices.*

Note that, theoretically, status would seem to hold more weight in the art market than reputation. Again, while reputation may be thought of as an individual attribute, status is a relational variable, and if status represents a hierarchical positioning in relation to others, the higher the status is judged, the greater the comparative value to others. A position in the hierarchy of status serves to highlight and distinguish individual artists, as only one artist can occupy a specific hierarchical space. When two artists of significant reputation are compared with each other and one is judged to be of greater status, it makes sense that the higher-status artist will have greater economic value. Along these lines, having a large network of high prestige others to which an artist is compared within exhibition may actually hurt the artist's status over time. Within a large network of prestigious others, the competition is stronger and one's own prestige must vie to stand out. Consequently, status connections may have a point of diminishing returns by which comparison to high prestige others increases one's own prestige to a point, after which a high-status comparison network becomes a liability. Our last hypothesis is therefore formulated as follows:

Hypothesis 5. *The effect of an artist's reputation on an artist's auction price is mediated by the artist's status connections, in that the effect of status diminishes with the growth of reputation.*

2. Data and Methods

2.1. Population

The population used in this research are those artists who exhibited three times or more in modern art exhibitions in three Dutch museums (Boijmans-van Beuningen Rotterdam, Stedelijk Museum

Amsterdam, and Van Abbe-Museum Eindhoven) between 1930 and 1989 (N = 1148). This population was compiled using exhibition catalog data provided by the archives of each museum[1]. In principle, an exhibition mentioned in the museum's list is included in our dataset, unless it is specifically indicated to not have content about modern visual arts. Therefore, exhibitions taking as their subject seventeenth-century painting or modern-day pottery were excluded. The initial lists of exhibitions in the museums are archived by the museums themselves. The three museums were selected for their importance and as broadly representative of Dutch art institutions. Our research timeframe, from 1930 to 1989, captures a period of institutionalization for art museums. As group exhibitions emerged in Dutch museums sparsely at the beginning of the 20th century, a starting point of 1930 allows for greater comparability through time among the exhibition networks. The upper boundary (1989) allows for a significant time period to be assessed (60 years of exhibition) while also allowing for a longitudinal assessment of auction prices (1990–2018).

In Figure 1, the distribution of museum exhibitions over our timeframe is presented. Historical upheavals such as World War II (WWII) had immense consequences for the course of history and the artists that populate it (as illustrated on a global level by Schich et al. 2014, p. 561). Our methodology deals with to possible historical disruptions by analyzing a significant timeframe (60 years) but within decade-by-decade periods (see Section 2.3 for specifics on data collection). The length of time allows for broad examination, where historical happenings and outliers do not dominate the overall data; conversely, our decade-by-decade analysis allows for consideration of the effects of historical events and helps contextualize our findings. For example, because we capture WWII within our analysis, we also capture the possible disruptions caused by such an event in our data. The post-1945 rise in exhibitions within our Dutch museums is dramatic, with the lowest number of exhibitions taking place in the 1930s (50) and the number of exhibitions slowly increasing towards the end of the timeframe (98 in the 1980s). Although Dutch art museums were left relatively autonomous in their decision-making during World War II (Mulder 1976, pp. 226–36), financial support from municipalities and the government after 1945 allowed for a proliferation of exhibitions immediately after the war (Pots 2000, pp. 249–53). Because we capture and analyze artists' long-term exhibition history, we can assess the possible effect of exhibitions within a given decade on those of a subsequent decade. Consequently, in our analysis, we found both a marked shortfall of exhibitions during WWII (Figure 1) and an anomalistic spike in the increase model over the confirmation model (Figure 2). Capturing this abnormality in the data allows us to understand how reputation and status may work in times of crisis. A potential explanation could be that when museum exhibition is a scarce resource, such as during wartime, the increase model becomes stronger, as there are more rewards to be gained in exhibiting. That is, given limited exposure opportunities, any affordance offers greater gains in status.

Our data collection captured the entire population of artists and exhibits within our three museums—a total of 6885 artists in 540 museum exhibitions. Given this large population, for both practical and theoretical reasons, we restricted our analysis to those artists who were exhibited at least three times during the study's timespan, allowing us to capture change in status and reputation over time. As such, our study population was reduced to 1148 artists. The bulk of these artists (80.0%) were living during at least the last 20 years of our timeframe. Moreover, due to our inclusion criteria being based in museum appearance, some of the artists were active long before being exhibited in a museum. Grouping artists by first exhibition appearance, rather than biological age, allowed us to examine an artist's professional career, which is often longer than an artist's lifetime (for a discussion on this, see Lang and Lang 1990, pp. 92–95). Additional analyses showed that our results were robust to the birth year of artists. Though birth year has a significant, negative effect ($\beta = -0.112$, $p < 0.000$), the strength or direction of the other reported effects were not significantly altered.

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[1] These archives are available digitally at https://bibliotheek.boijmans.nl/adlib312/default.aspx, http://library.stedelijk.nl/default.aspx, and http://212.61.168.66/abbeweb/Vubis.csp?Profile=Default.
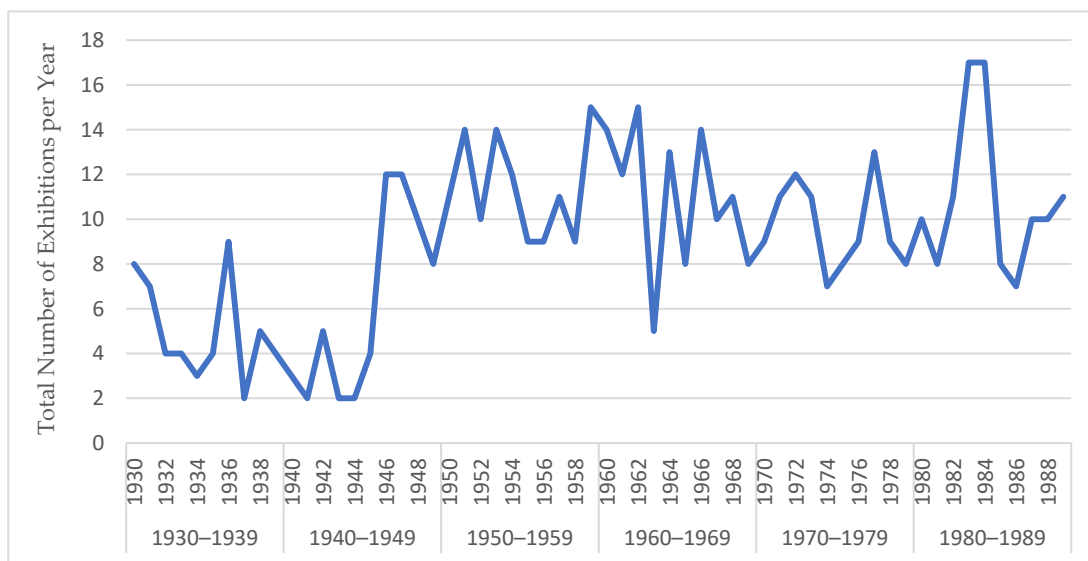
Figure 1. Number of museum exhibitions per year in three Dutch museums.
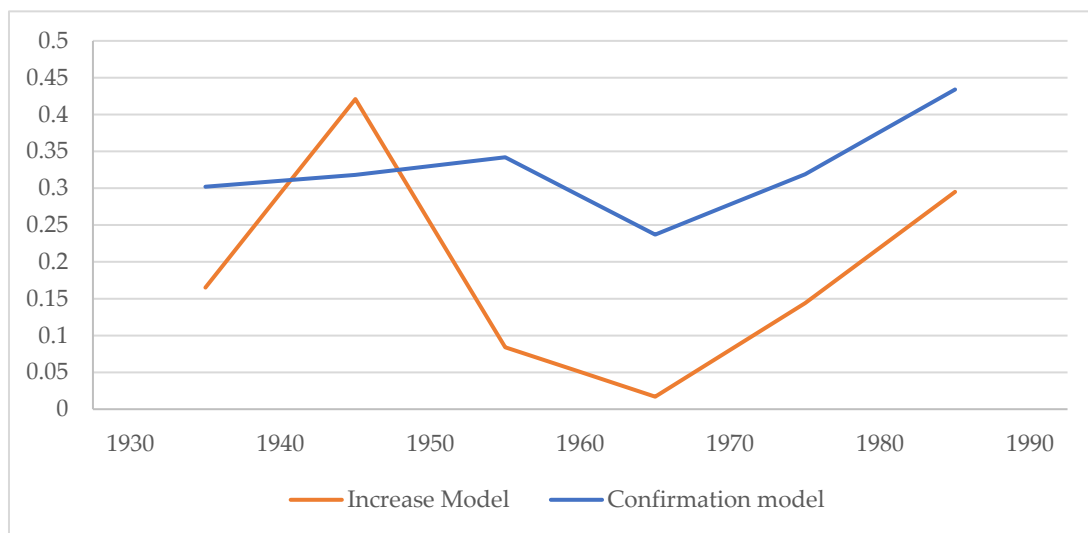

Figure 2. Pearson's r correlation coefficients between artists' reputation and status per decade.

2.2. Variables and Operationalization

2.2.1. Reputation: Solo Exhibition and Book Inclusion

In this research, we theorize that reputation is an individual variable of prestige. We have two measurements to capture reputation: solo exhibitions and book inclusion. First, we operationalize an artist's reputation as the number of solo exhibitions the artist had in our museums during our timeframe. That is, the variable includes all solo exhibitions an artist garnered from 1930 to 1989 in the three museums examined. Solo exhibition data were collected through the same museum archival websites used to gather general exhibition data (see above). For solo exhibitions, we have longitudinal data (exhibitions are timestamped), and we therefore use this data to test our confirmation and increase models. For robustness, we also collected data beyond our timeframe (from 1890 to 2018). Analyses of this data did not significantly alter our results.

For a second measure of an artist's reputation, we used the number of books that specifically deal with a given artist. To gather this data, we used WorldCat.org, a library cataloguing database, which compiles lists of books available for public circulation in libraries throughout the world. Search queries were created to include all matches that named an artist in the title, abstract, or keywords. Exhibition

catalogs were excluded, as we wanted to disentangle book inclusion from inclusion in museums, as well as avoid measuring the same operationalization (museum appearance) in both variables. To do so, we excluded from our query all terms similar to "exhibition catalog" or "tentoonstellingscatalogus". Book inclusion data were not collected with a timestamp, which restricted us to use this variable only in the regression analysis and not in the longitudinal analysis.

2.2.2. Status: The Prestige of an Artist's Associative Network

We theorize that status is an inherently relational concept. Because exhibitions form a symbolic connection between artists, we argue that an artist's exhibition history can provide an exhibition network of associated artists. Ties between artists are demonstrated by joint exhibition appearance, with stronger ties being indicated by repeated joint exhibition. We argue that association with artists of high reputation will add to a given artist's prestige, either through confirmation effects of reputation or an actual increase through connection. As we measured reputation in two ways, through solo exhibition and book inclusion, we compared status networks in parallel. For each artist in our population, we created an ego-network, including all artists with whom he or she exhibited at least once. All associated artists ("alters") were assigned their own measure of solo exhibitions and book inclusion. Because we knew how often our focal artist was connected to his or her alters, we calculated an artist's status network score by multiplying the strength of the connection to the alter by that alter's reputation score and then adding the score of all the alters. We thus acquired two status networks: one of book inclusion and one of solo exhibition.

2.2.3. Auction Price

We measured an artist's highest price at auction in euros with data retrieved from artprice.com. Because we conceive of reputation as being built over numerous exhibitions and decades, we examined auction prices subsequent to our artists' exhibition histories (i.e., auction prices from 1990 to 2018). This allowed us to capture long-term reputational standing, rather than the ups-and-downs of analyzing a shorter timeframe, for example, a yearly analysis of exhibition to auction prices. While our exhibitions were only in the Netherlands, auction prices were not nation specific. Given the global nature of art markets for pre-World War II, post-war, and contemporary artists (MacAndrew 2008; Crane 2009; Velthuis and Curioni 2015), this long-term measurement is a more valid indication of an artist's auction price than restricting the measurement to prices acquired at Dutch auctions alone. As often is the case in art price research (Rosen 1981), we found a distribution with a high number of low art prices and a few high-priced outliers. After log transformation, the art prices were found to be distributed normally, allowing us to use these data in regression analysis.

Table 1 provides descriptions of auction prices and independent variables for our sample of 1148 artists for which we have data. The mean score on our independent variable, i.e., the highest price achieved at auction for the work of an artist, was 2.11 million euros, with a standard deviation of 8.67 million. These values show that the distribution of rewards among artists is positively skewed, with a small number of artists demanding very high prices—a finding that is unsurprising given the superstar economy of visual arts (Rosen 1981; Menger 1999). Artists on average appear in just over 10.5 museum exhibitions, with solo exhibitions being rare, averaging 0.79. The average number of books in which an artist is included in the WorldCat database is almost 38, and here, we found a similarly skewed distribution of rewards as we did with auction price. For our two status network scores, we used the artists' exhibition connections to calculate the status score of each artist's network measured in both solo exhibitions and book inclusion. The average score of "network solo exhibition" was just over 901. In itself, the score is hard to interpret: it is the strength of an artist's ties to others multiplied by his or her number of solo exhibitions. However, in comparison with other artists, each individual artist will find his- or herself on a scale, comparing him or her to all other artists. For solo exhibitions, this scale runs from 0 to 7635, with an average of 901. A similar scale was

constructed for an artist's network on the variable of book inclusion, running from 0, through the average of 6.110, to the maximum score of 77.049.

Table 1. Calculations regarding the study population of artists.

Characteristic of the Artist	N	Mean	Standard Deviation
Highest Auction Price (in Millions of Euros)	1148	2.11	8.67
Total Group Exhibitions	1148	10.53	10.54
Total Solo Exhibitions	1148	0.79	1.30
WorldCat Book Count	1148	37.87	128.58
Network Solo Exhibition	1148	901.27	1294.31
Network Book Count	1148	6110.76	8453.73

2.3. Methodology

In this paper, we used two separate strategies of analysis to test our hypotheses. To test Hypotheses 1 and 2, we used a longitudinal analysis assessing the impact of status versus reputation through time. For Hypotheses 3, 4 and 5, we employed ordinary least square (OLS) regression analyses.

The increase and confirmation models of Hypotheses 1 and 2 were tested by using our museum exhibition data during the timeframe from 1930 to 1989. We divided this timeframe into six decades and obtained information on the solo exhibitions in an additional seventh decade. This allowed us to compare six different changes in time: 1930s–1940s, 1940s–1950s, 1950s–1960s, 1960s–1970s, 1970s–1980s, and 1980s–1990s. For every artist, we calculated both individual reputation through their number of solo exhibitions during that decade and the prestige of their exhibition network. To assess which of these variables more strongly predicted the other, we calculated Pearson's r correlation coefficients for the variables. Model 1 tested the confirmation model and therefore assessed how an artist's solo exhibitions at timepoint 1 affect that artist's exhibition network's prestige at the subsequent timepoint 2. The analytical reverse effect was tested in Model 2, in which we assessed how the prestige of one's exhibition network at t1 predicts the number of solo exhibitions an artist features in at t2. This we termed the increase model, as it ascertains whether artists with high prestige connections derive benefits to their reputation over time.

Hypotheses 3, 4 and 5 were tested by using OLS regression analysis to allow for an examination of how separate factors simultaneously affected our outcome variable: auction prices. OLS was appropriate as the log transformation variable of auction price was normally distributed. Moreover, we tested for multicollinearity by using variance inflation factors in our models. When multiple independent variables correlate with each other, this potentially harms the validity of the acquired results. The variance inflation factor is a ratio that tests how severely independent variables in a model correlate with each other, with a general standard that values over 10 indicate problematic results (Field 2014, p. 325). More conservative values have also been proposed, with Menard (1995) urging researchers to be aware of scores higher than 5. The variance inflation factor (VIF) values in our models never passed 5 (the highest VIF was 3.23), indicating that there were no significant problems with multicollinearity between our independent variables. To improve the interpretability of our variables in comparison with the interaction term we introduced in Model 5, all the variables used in the regression analyses were centered around their mean (Field 2014, pp. 398–400).

3. Results

We tested our hypotheses by measuring reputation and status at different moments in time. To ascertain how they are chronologically related, we measured reputation and status for every artist in our sample at six different periods, i.e., a data point per decade from 1930 to 1990.

In Table 2, the first row is our "increase model", with the presented values being Pearson's r correlation coefficients between status at t1 and reputation at t2 per decade. Pearson's r theoretically ranges from −1 (a perfect negative relationship), through 0 (no relation between the variables), to 1

(a perfect positive relationship) ([Privitera 2015](#), pp. 484–91). When a value is positive, it means that status in the previous decade had a positive relationship with reputation in the subsequent decade. In other words, through these numbers, we measured how status predates reputation connections. We found only partial evidence for our first hypothesis, as, in some decades, status was a significant predictor of later reputation, but the correlation did not always achieve significance.

Table 2. Pearson's r correlation coefficients between artists' reputation and status per decade.

	1930s (t1) to 1940s (t2)		1940s (t1) to 1950s (t2)		1950s (t1) to 1960s (t2)		1960s (t1) to 1970s (t2)		1970s (t1) to 1980s (t2)		1980s (t1) to 1990s (t2)	
Status (t1) to Reputation (t2)	0.165	***	0.421	***	0.084		0.017		0.144	**	0.295	***
Reputation (t1) to Status (t2)	0.302	***	0.318	***	0.342	***	0.237	***	0.319	***	0.434	***

*** = $p < 0.001$, ** = $p < 0.01$, * = $p < 0.05$ (two-tailed).

In the second row of Table 2, we provide the results for the confirmation model, where the values represent Pearson's r correlation coefficients between reputation at t1 and status at t2 per decade. The values measured in these rows were analytically distinct from the previous model, as they showed how an artist's reputation influences status over time. The positive correlation coefficients indicated that reputation affects status positively. The resulting values were positive and significant for every decade, indicating strong evidence for our second hypothesis and the corresponding confirmation model.

Figure 2 compares the two models via a line graph, demonstrating the correlation coefficients over time. This graph illustrates how the two theorized models relate to one another. What is specifically interesting here is that the blue line, representing the confirmation model, is almost consistently higher than the orange line (representing the increase model)—again, providing evidence for the confirmation model over the increase model. Nevertheless, we found a spike in the effect of status on reputation in the early 1940s (for a discussion of this spike and its connection to WWII, please see Section 2.1).

We executed stepwise OLS regression models to test Hypotheses 3, 4, and 5. In these hypotheses, we theorized about the effects of status and reputation on an artist's auction price. All the models therefore had an artist's highest auction value as the dependent variable. Table 3 provides the results of our regression analyses. In Model 0, we included only museum exhibition as a control variable. We added individual reputation effects in Model 1, and Model 2 shows the effects of status on auction price. In Model 3, we showed the effects of status and reputation combined, and our final analysis (Model 4) included the interaction effect of reputation on status.

Table 3. Ordinary least squares (OLS) regression results, showing effects on the highest auction price (log transformed) and reporting the standardized coefficients.

	Model 0		Model 1		Model 2		Model 3		Model 4	
Reputation										
Total solo exhibitions			0.201	***			0.037		0.038	
WorldCat books			0.410	***			0.215	***	0.345	***
Status										
Network solo exhibitions					−0.225	***	−0.189	***	−0.261	***
Network book inclusion					0.802	***	0.664	***	0.793	***
Interaction										
Book inclusion X Network book inclusion									−0.278	***
Control variable										
Museum exhibitions	0.001		−0.087	**	−0.200	***	−0.194	***	−0.171	***
Adjusted R^2	0.000		0.232		0.380		0.418		0.456	

*** = $p < 0.001$, ** = $p < 0.01$, * = $p < 0.05$ (two-tailed).

Our baseline, Model 0, did not test our hypotheses, but rather included a control variable: the total number of museum exhibitions that featured an artist. Museum exhibition was included as a control variable to assess whether it is the mere number of appearances in a museum that influences an artist's prestige rather than the connections created in the museum's exhibitions. However, in Model 0, we found that museum exhibition in itself does not significantly predict auction prices for artists, with an insignificant standardized coefficient of 0.001. In other words, museum exhibition alone is not a significant predictor of auction price.

In Model 1, we added two variables to our analysis that capture an artist's individual reputation. Specifically, Model 1 measured the "reputation effects" on auction price of having solo exhibitions in museums and being featured in art historical books. We found both our proxies of reputation to have positive and significant effects, with book inclusion being a particularly strong predictor ($\beta = 0.410$). Moreover, total number of museum exhibition (control variable) was a negative, though small, significant predictor.

Model 2 presents the effects of status on auction price. We had two indicators of an artist's status: first, the variable titled "network solo exhibitions" represented how many of an artist's co-exhibitors previously had a solo exhibition of their own, thus indicating their high level of status. Second, for "network book inclusion", a higher score indicated that an artist had a large exhibition network of co-exhibitors featured in books. Our results regarding the status effect on auction price were ambiguous but significant. Having co-exhibitors with solo exhibitions had a negative, significant effect on auction price, with a standardized coefficient of −0.225. Artists with co-exhibitors featured in books, however, had a strong, positive, and significant effect on an artist's auction price. Our control of an artist's number of museum exhibitions continued to have a negative effect in this model.

To assess how the two concepts, reputation and status, affect auction prices simultaneously, we combined effects in Model 3. When combining variables, an artist's number of individual solo exhibitions lost predictive power with respect to auction prices (i.e., having solo exhibitions does not predict auction prices for an artist), while all other variables retained significant effects and directions, although the strength of the relationship slightly diminished. Our final model, Model 4, included an interaction term in the regression to ascertain how the effects of reputation and status might reinforce one another. It is this final model, we tested our hypotheses. Hypothesis 3, dealing with the effects of artist's reputation on auction price, was partly confirmed, as only a specific operationalization of reputation provided significant results (i.e., being featured in books). Whereas an artist's book inclusion was a very strong predictor of auction price ($\beta = 0.345$), acquiring solo museum exhibition on average did not lead to higher auction prices ($\beta = 0.038$). Our fourth hypothesis dealt with status effects, and here, as well, we found slightly conflicting results. First, book networks were, again, a particularly strong predictor ($\beta = 0.793$), but being exhibited with a strong network of co-exhibitors who previously had solo exhibitions themselves actually detracted from an artist's auction price ($\beta = −0.261$).

The interaction term hypothesized in Hypothesis 5 was found to be significant and negative. By including this interaction term, we measured whether the effect status has on book inclusion differs for artists who have differing reputation levels: does status work similarly for artists of low or higher reputation or can we discern differing effects for low and high reputation artists? The negative value of $\beta = −0.171$ found in Model 4 indicates that the strength of the effect of status on book inclusion diminishes as artists gain better reputations. To further assess how reputation and status effects interact, Figure 3 shows a scatterplot in which status effects are plotted on the x-axis and auction prices on the y-axis. Artists were divided into four different groups, ranging from low reputation (represented by blue), medium reputation (red and green), and high reputation (orange). For every category, we then drew a regression line to determine how status affects auction price for artists belonging to different reputation groups. As shown, we found particularly strong status effects for low and medium-low reputation artists, represented by steep regression lines. Conversely, while the effect was still present and positive for medium-high and high reputation artists, it was much less strong as it was for the low reputation artists, with a far more temperate increase in their regression lines.
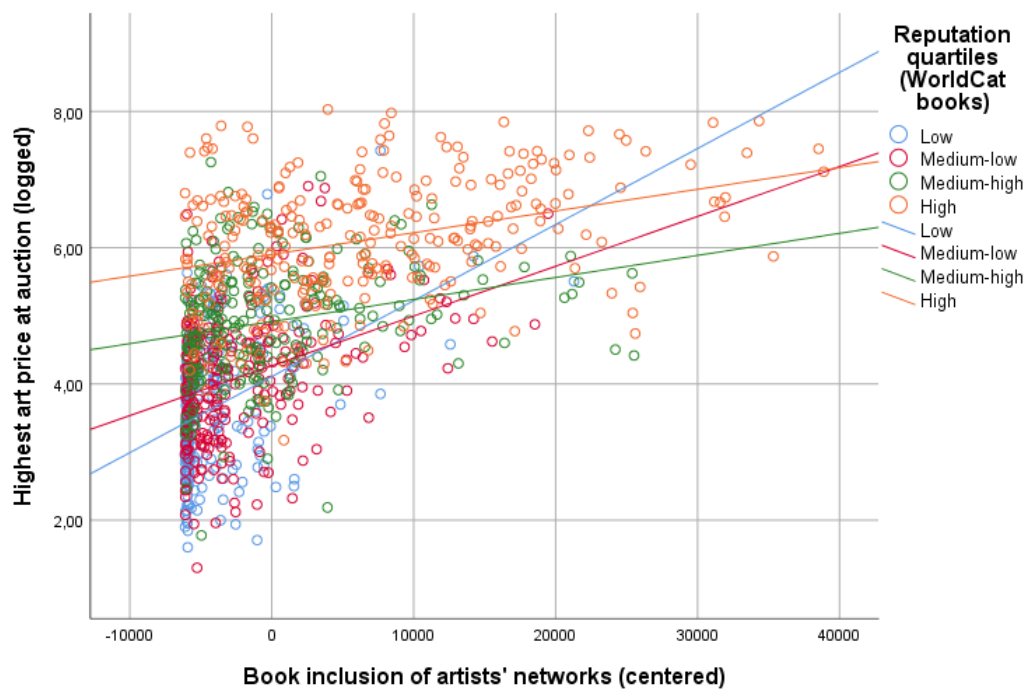
Figure 3. Scatterplot and regression lines of the effects of status (measured as network book inclusion) on auction prices (logged) for artists of differing levels of reputation.

4. Discussion and Conclusions

In this research, we theoretically differentiated reputation from status. We argued that reputation is an individual attribute based on what is known about a given artist. Alternatively, status is a judgement in which an individual is explicitly compared to others. While the concepts are interconnected, the present research demonstrates that often reputation precedes status, at least with respect to our population of artists and exhibitions. Thus, contrary to the belief that careers often depend on "breaks", where an unestablished artist gains prestige through association, the reverse effect is stronger: such associations are usually on the basis of an established reputation. Our analysis of museum exhibitions reveals that artists are frequently grouped together based on similar reputational standing—a theoretical model we labelled the confirmation model. Artists with a high reputation subsequently obtain high-status connections in museum exhibitions. While our alternative theory, the increase model, also achieved significance, it was at a slower pace and with reduced impact. With the increase model, we found that high-status networks, where artists are exhibited with other artists of greater reputation than themselves, do increase prestige and add to a given artist's reputation, albeit less than in the confirmation model. Overall, we found that reputation and status interact on a feedback loop, where both promote and strengthen each other's growth; however, the artist's individual reputation is usually the principal force driving the process.

We developed our analysis of reputation versus status further by examining their effect on long-term auction valuation. Given the evidence obtained for both the confirmation and increase models in museum exhibition, we analyzed the effects of both on the auction prices of our population of artists. The results were twofold. First, we found evidence that status connections are important regarding auction price and stronger than reputational standing. In other words, the increase model of status connections explained an artist's auction price better than the confirmation model. Our second finding, however, shows the nuances of the primacy of status connections. For auctions, we found an interaction effect between reputation and status: status connections are important regarding auction price when artists have yet to build a strong reputation. That is, the increase model of status connections seemed to most strongly operate at the lower levels of artistic prestige, when reputations are still being built. The strength of the effect of status on auction price decreases when artists acquire a higher

reputation, but even for high-reputation artists, the effect of status remains positive. Accordingly, status associations can be understood as having diminishing returns: when artists have a lower prestige reputation, status associations are constructive to increasing prestige; however, at a certain point, an artist's reputation takes over as the main mechanism explaining auction price.

It is important to keep in mind that the threshold of inclusion in our population required an artist to already have a degree of success in the art world, having been included in museum exhibitions on at least three different occasions (see Section 2). Despite this degree of establishment, long-term artistic valuation is marked by uncertainty, where even amongst the most talented and promising artists, some achieve distinction, but most do not. This research attempted to understand some of the factors that contribute to this disparity. Within the institutional setting of museum exhibitions, associations between artists were made primarily based on prior reputation (the confirmation model), although we did find that the increase model functioned, albeit slowly. In our second analysis, we focused on the micro-level of the individual artist to assess how reputation and status affect an individual artist's auction price. Here, the importance of the slow-working "increase" model came to the fore, suggesting that different stages of an artistic career require different strategies for building prestige. Consequently, for example, our findings appear to recommend that an unestablished artist should focus on general exhibitions with prestigious others rather than solo exhibitions dedicated to his or her own work. Once a reputation is established, we found that perpetuation is likely; however, status is the means by which to (slowly) attain a higher reputation. It should be kept in mind, however, that garnering prestigious associations is itself challenging. Indeed, we found that artists were most often grouped with those of similar reputation. Nevertheless, artists who can garner high-status connections while still building their reputation are generally rewarded with greater auction prices. Once established, however, an artist should turn his or her attention towards maintaining and bolstering reputation through personal achievements rather than prestige connections.

Finally, we wish to discuss a striking finding in the empirical results that deserves some elaboration. We operationalized artistic prestige through inclusion in books and solo museum exhibition. Book inclusion served as an excellent predictor of an artist's auction price; solo exhibition, however, did not. Solo exhibition did not achieve significance as a predictor of auction price, and for status networks, being connected with other artists who had solo exhibition decreased an artist's predicted auction results. While it is difficult to pinpoint what is underlying these surprising findings, we believe an answer might be found in the difference between the forms of prestige that book inclusion and solo exhibition convey. While books denote a long-term, historical level of importance, solo exhibitions offer more short-term and contemporaneous prestige. For auction prices, association with those marked as historically important belies reputational durability and greater permanence—desirable attributes for those investing in expensive works of art.

There are several limitations to this study, raising questions deserving due attention in future research. First, the empirical context of this research comprised solely exhibitions in three museums in the Netherlands. This means that despite the wide variety of artists from different nationalities featured in our population, Dutch artists were overrepresented. The wide timeframe and the inclusion of international artists in Dutch museum exhibitions still allowed for an analysis of artists' prestige, but it should be kept in mind this was seen from a Northern-European viewpoint. Although there is no reason to doubt our conclusions based on this research's national setting (e.g., with empirical research focusing on France (White and White 1965; Quemin 2006), the United States of America (Alexander 1996; DiMaggio 1996), and Germany (Beckert and Rössel 2013) using similar singular contexts), an international comparison of artistic status and reputation would offer a deeper understanding of how national contexts and their institutions affect artistic prestige. A possible avenue for further research could inquire into the effects of artists' nationalities, museum inclusion, and reputation building. A working hypothesis based on our findings is that museums may have a more confirming role for the reputation-building of foreign artists and a more status increasing

role for domestic artists. For this, inspiration could be gathered from, for instance, the research of Janssen et al. (2008) and Ertug et al. (2016).

Additionally, our research focused on the meaning of status connections for the evaluation of artists. In this research, we treated connections made between artists in museum exhibitions as unproblematic, with any connection carrying forth some evaluative judgement. An avenue worthy of further investigation is whether there are different types of connections that institutions make (cf. Teekens 2016). For instance, one can imagine that some exhibitions contrast specific artists with one another, instead of relating them. In this paper, our argument is that status flows through such connections regardless of the precise intention. We argue that even if an artist is contrasted with a prestigious artist, the contrast still implies that one is worthy of comparison. This theoretical assumption, however, needs further empirical validation, although the significant results in this research show that repeated connections do affect artistic reputation even without differentiating their intention. In other work (Braden and Teekens, please contact authors for manuscript), we problematized this assumption by testing the importance of specific historical connections between artists within exhibitions. Differentiating connections made between artists of differing historical periods allowed for an assessment of how an artist's exhibition connections to historical predecessors and successors affect artistic reputation. We found that those artists who bridge artistic generations (i.e., exhibit with both artists who came before and after the artist's own time) tend to receive the most coverage in books. Together with the findings in this research, we believe that it is valuable to continue examining under what circumstances and in what points in an artistic career, different symbolic associative connections affect an artist's prestige.

References

Alexander, Victoria D. 1996. Pictures at an Exhibition: Conflicting Pressures in Museums and the Display of Art. *American Journal of Sociology* 101: 797–839. [CrossRef]

Anheier, Helmu K., and Jürgen Gerhards. 1991. The acknowledgment of literary influence: A structural analysis of a German literary network. *Sociological Forum* 6: 137–56. [CrossRef]

Beckert, Jens, and Jörg Rössel. 2013. The Price of Art: Uncertainty and reputation in the art field. *European Societies* 15: 178–95. [CrossRef]

Berger, Joseph, Bernard P. Cohen, and Morris Zelditch Jr. 1972. Status characteristics and social interaction. *American Sociological Review* 37: 241–55. [CrossRef]

Bourdieu, Pierre. 1983. The field of cultural production, or: The economic world reversed. *Poetics* 12: 311–56. [CrossRef]

Braden, L. E. A. 2009. From the Armory to academia: Careers and reputations of early modern artists in the United States. *Poetics* 37: 439–55. [CrossRef]

Braden, L. E. A. 2018. Networks created within exhibition: The curators' effect on historical recognition. *American Behavioral Scientist*. [CrossRef]

Braden, L. E. A., and Thomas Teekens. *Historical Networks and Commemoration. Connections Created through Museum Exhibitions*, Unpublished.

Brosens, Koenraad, Klara Alen, Astrid Slegten, and Fred Truyen. 2016. Maptap and Cornelia: Slow digital art history and formal art historical social network research. *Zeitschrift für Kunstgeschichte* 79: 315–30.

Collins, Randall, and Mauro F. Guillén. 2012. Mutual halo effects in cultural production: The case of modernist architecture. *Theory and Society* 41: 527–56. [CrossRef]

Craig, Ailsa. 2007. Sustainability, reciprocity, and the shared good(s) of poetry. *The Journal of Arts Management, Law, and Society* 37: 257–70. [CrossRef]

Craig, Ailsa, and Sébastien Dubois. 2010. Between art and money: The social space of public readings in contemporary poetry economies and careers. *Poetics* 38: 441–60. [CrossRef]

Crane, Diana. 1987. *The Transformation of the Avant-Garde: The New York Art World, 1940–1985*. Chicago: University of Chicago Press.

Crane, Diana. 2009. Reflections on the global art market: Implications for the sociology of culture. *Sociedade e Estado* 24: 331–62. [CrossRef]

Currid, Elizabeth. 2007. How art and culture happen in New York: Implications for urban economic development. *Journal of the American Planning Association* 73: 454–67. [CrossRef]

DiMaggio, Paul. 1996. Are art-museum visitors different from other people? The relationship between attendance and social and political attitudes in the United States. *Poetics* 24: 161–80. [CrossRef]

Dowd, Timothy J., and Diogo L. Pinheiro. 2013. The Ties Among the Notes: The Social Capital of Jazz Musicians in Three Metro Areas. *Work and Occupations* 40: 431–64. [CrossRef]

Ertug, Gokhan, Tamar Yogev, Yonghoon G. Lee, and Peter Hedström. 2016. The Art of Representation: How Audience-specific Reputations Affect Success in the Contemporary Art Field. *Academy of Management Journal* 59: 113–34. [CrossRef]

Field, Andy. 2014. *Discovering Statistics Using IBM SPSS Statistics*, 4th ed. London: Sage.

Foster, Hal. 1994. What's neo with the neo-avantgarde? *The Duchamp Effect* 70: 5–32.

Fraiberger, Samuel P., Roberta Sinatra, Magnus Resch, Christoph Riedl, and Albert-László Barabási. 2018. Quantifying reputation and success in art. *Science* 362: 825–29. [CrossRef] [PubMed]

Granovetter, Mark. 2005. The Impact of Social Structure on Economic Outcomes. *Journal of Economic Perspectives* 19: 33–50. [CrossRef]

Guthrie, E. R. 1930. Conditioning as a principle of learning. *Psychological Review* 37: 412–28. [CrossRef]

Guthrie, E. R. 1959. Association by contiguity. *Psychology* 2: 158–95.

Hamilton, David L., and Robert K. Gifford. 1976. Illusory correlation in interpersonal perception: A cognitive basis of stereotypic judgments. *Journal of Experimental Social Psychology* 12: 392–407. [CrossRef]

Janssen, Susanne, Giselinde Kuipers, and Marc Verboord. 2008. Cultural Globalization and Arts Journalism: The International Orientation of Arts and Culture Coverage in Dutch, French, German, and U.S. Newspapers, 1955 to 2005. *American Sociological Review* 73: 719–40. [CrossRef]

Kahneman, Daniel. 2011. *Thinking, Fast and Slow*. New York: Farrar, Straus and Giroux.

Lang, Gladys Engel, and Kurt Lang. 1990. *Etched in Memory: The Building and Survival of Artistic Reputation*. Chapel Hill: University of North Carolina Press.

Lincoln, Matthew. 2016. Social network centralization dynamics in print production in the Low Countries, 1550–1750. *International Journal for Digital Art History* 2: 134–57.

Linton, Ralph. 1936. *The Study of Man*. New York: Appleton-Century.

MacAndrew, Clare. 2008. *The International Art Market: A Survey of Europe in a Global Context*. Helvoirt: European Fine Art Foundation (TEFAF).

Madoff, Steven Henry, ed. 2009. *Art School. (Propositions for the 21st Century)*. Boston: MIT Press.

Meirelles, Isabel, Maximilian Schich, and Roger Malina. 2014. Arts and humanities, Complex network analysis of. *Encyclopedia of Social Network Analysis and Mining*, 56–60. [CrossRef]

Menard, Scott. 1995. *Applied Logistic Regression Analysis (Quantitative Applications in the Social Sciences 106)*. London: Sage.

Menger, Pierre-Michel. 1999. Artistic labor markets and careers. *Annual Review of Sociology* 25: 541–74. [CrossRef]

Mulder, H. 1976. Kunst in crisis en bezetting. Een onderzoek naar de houding van Nederlandse kunstenaars in de periode 1930–1945. Ph.D. thesis, Utrecht University, Utrecht, The Netherlands.

Pots, Roel. 2000. *Cultuur, koningen en democraten. Overheid & cultuur in Nederland*. Nijmegen: SUN.

Privitera, Gregory J. 2015. Statistics for the Behavioral Sciences, 2nd ed.London: Sage.

Quemin, Alain. 2006. Globalization and Mixing in the Visual Arts: An Empirical Survey of 'High Culture' and Globalization. *International Sociology* 21: 522–50. [CrossRef]

Ridgeway, Sally. 1989. Artist groups: Patrons and gate-keepers. In *Art and Society: Readings in the Sociology of the Arts*. Albany: State University of New York Press.

Rosen, Sherwin. 1981. The economics of superstars. *American Economic Review* 71: 845–58.

Schich, Maximilian, Chaoming Song, Yong-Yeol Ahn, Alexander Mirsky, Mauro Martino, Albert-László Barabási, and Dirk Helbing. 2014. A network framework of cultural history. *Science* 345: 558–62. [CrossRef] [PubMed]

Schmutz, Vaughn, and Alison Faupel. 2010. Gender and cultural consecration in popular music. *Social Forces* 89: 685–707. [CrossRef]

Schultz, Majken, Jan Mouritsen, and Gorm Gabrielsen. 2001. Sticky reputation: Analyzing a ranking system. *Corporate Reputation Review* 4: 24–41. [CrossRef]

Skinner, Burrhus Frederic. 2014. *Contingencies of Reinforcement: A Theoretical Analysis*. Cambridge: BF Skinner Foundation Books, vol. 3.

Strauss, Anselm L. 2017. *Psychological Modeling: Conflicting Theories*. New York: Routledge.

Szabo, Victoria. 2012. Transforming art history research with database analytics: Visualizing art markets. *Art Documentation* 31: 158–75. [CrossRef]

Teekens, Thomas. 2016. Who You Know or How You're Known. The Dual Effect of Professional Collaboration and Status Connections on Artistic Careers in Dutch Films. Master's thesis, Erasmus University Rotterdam, Rotterdam, The Netherlands.

Thorndike, Edward L. 1920. A constant error in psychological ratings. *Journal of Applied Psychology* 4: 25–29. [CrossRef]

Uzzi, Brian, and Jarrett Spiro. 2005. Collaboration and creativity: The small world problem. *American Journal of Sociology* 111: 447–504. [CrossRef]

Van Ginhoven, Sandra. 2017. *Connecting Art Markets*. Boston: Brill.

Velthuis, Olav, and Stefano Baia Curioni. 2015. Making markets global. In *Cosmopolitan Canvases. The Globalization of Markets for Contemporary Art*. Oxford: Oxford University Press, pp. 1–30.

White, Harrison C., and Cynthia A. White. 1965. *Canvases and Careers: Institutional Change in the French Painting World*. Chicago: University of Chicago Press.